



THE ASSAM GAZETTE

অসাধাৰণ

EXTRAORDINARY

প্ৰাপ্ত কৰ্তৃত্ব দ্বাৰা প্ৰকাশিত

PUBLISHED BY THE AUTHORITY

নং 541 দিশপুৰ, বৃহস্পতিবাৰ, 21 জুলাই, 2022, 30 আশাৰ 1944 (শক)

No. 541 Dispur, Thursday, 21st July, 2022, 30th Ashadha, 1944 (S. E.)

GOVERNMENT OF ASSAM

ORDERS BY THE GOVERNOR

DEPARTMENT OF HOUSING AND URBAN AFFAIRS

NOTIFICATION

The 22nd June, 2022

No. UDD(T)231/2022/6 .- In exercise of the powers conferred by the Section 9 and Sub-section (I) of Section 10(Ten) of the Assam Town & Country Planning Act, 1959 (as amended) and (Assam Act II of 1960) read with Sub-rule (I) of Rules 3 of the Assam Town & Country Planning (Publication of Master Plan and Zoning Regulations) Rules 1962, the Governor of Assam is pleased to publish the following notice regarding the publication of Draft Master plan for Lumding.

Notice for the Publication of Draft Master Plan for Lumding:

1. It is notified that the Draft Master plan for Lumding prepared by the Directorate of Town & Country Planning, Government of Assam, Town & Country Planning Act. 1959 (as amended) read with Sub-section I of Section 10(Ten) of Assam Town & Country Planning Act (As amended), for the area described in the schedule below is hereby published.
2. Any person or persons affected by the Draft Master plan may submit their objection or opinion in writing to the Director, Town & Country Planning, Government of Assam, Dispur, Guwahati-6 within two months from the date of publication.

3. The Draft Master plan for Lumding with all relevant papers and maps may be inspected free of Cost during office hours at the Office of the Director, Town & Country Planning, Dispur, Guwahati-6, the Deputy Director, Town & Country Planning, District Office Nagaon, the Circle Office, Lumding Revenue Circle, Lumding, Office of the Chairman, Lumding Municipal Board, Lumding. Copies of the Draft Master plan for Lumding are available at the Office of the Deputy Director, Town & Country Planning, District Office Nagaon for sale on payment.

DRAFT MASTER PLAN LUMDING, 2045

SCHEDULE

A. Situation and area:

District	: Hojai
Sub- division	: Hojai
State	: Assam.
Master Plan Area	: 20.00 Sq. Km.
Municipal Board Area	: 7.77 Sq.Km.

Apart from the Lumding Municipal Board Area, Lumding Master Plan area covers 17 Nos. of nearby villages under 07 Nos. of Revenue Villages. The villages included in the Draft Master Plan for Lumding with Mouzas are as follows:-

Sl. No.	Mouza	Villages
Part-1		
1	Lumding	1. Jarang Disha
		2. Jarang Disha No. 1
		3. Jarang Disha No. 2
		4. Dakhin Lumding
		5. Dakhin Lumding Part-1
		6. Kangar Gaon

		7. Kangar Gaon No. 1
		8. Sadhukhuti No. 1
		9. Sadukhuti No.2
		10. Hati Khali
		11. Hati Khali No. 1
		12. Hati Khali No. 2
		13. Hati Khali No. 3
		14. Mora Basti
		15. Pub Lumding
		16. Pub Lumding Part-1
		17. Pub Lumding Part-2

B. Description of boundaries:

NORTH : Garo-Basti

SOUTH : Nepali Basti

EAST : Khristan Basti

WEST : Shastri Basti

KAVITHA PADMANABHAN,
 Commissioner & Secretary to the Government of Assam,
 Department of Housing & Urban Affairs,
 Dispur, Guwahati-6.

CHAPTER: 1

INTRODUCTION TO MASTER PLAN AREA

Lumding is a town of Central Assam, District of Hojai. Lumding is located about 45 Kms. on the North of District Headquarter Sankardev Nagar. It is located 206 Kms. east of the State Capital, Dispur, Assam, 98 Kms. towards South of Nagaon Town and 54 Kms. from Hojai Town.

Lumding is connected by NH 27 four-lane, which starts at Porbandar, Gujarat ends at Silchar (6 hrs. journey) via Lumding. Guwahati (2.5 hrs. journey) connected near Borghat Roundabout which is 5 km apart from Nagaon Sadar. State Highway 329 connects Lumding to Diphu (District Headquarter of Karbi Anglong East) up to Manja.

Lumding railway division is famous for being the biggest divisional headquarters of the Northeast Frontier Railway (NFR) and the biggest junction in the North-Eastern part of the country. The town is also the gateway to the visually enchanting Lumding-Badarpur hill-tract between Lumding and Badarpur. The track has been included as a UNESCO World Heritage Site.

Initially Lumding Town Committee was formed on 03/05/1985 and by election the Town Committee was upgraded to Municipal Board w.e.f. 01/06/1995 under the Chairmanship of Lumding Town Committee.

The demarcation of the planning area of Lumding has been made considering the present growth of the town, the physical feature of the surrounding areas, communication network, different type of developmental works already come up in nearby villages and potential for future development of the region. The town has been growing towards Lumding – Haflong-Maibong Road, in NH-27.

As of 2011 Census of India, Lumding Municipal Board Area has a population of **31,347** of which male population is **15,909** and female population is **15,438**.

It was observed that, Lumding town area has been growing haphazardly and this has created enormous problems to the habitant of the town. In this context, "Draft Master Plan Lumding 2045 is prepared to guide the physical development of the town with some surrounding villages in future. This plan is prepared, basically a land use plan considering all the urban development aspects, with forecasting all the service up to 2045. By and large, this Master plan has been prepared as per the provision of URBAN DEVELOPMENT PLANS, FORMULATION AND IMPLEMENTATION, GUIDELINES, 1996 prepared by the INSTITUTE OF TOWN PLANNERS, INDIA NEW DELHI under the assistance of the Ministry of Urban Affairs and Employment, Govt. of India, New Delhi and Circular issued by U.D.D (T &CP Wing), Govt. of Assam time to time. Uniform Zoning Regulations are

considered as it is already approved for all the towns of Assam including Lumding Town by the Govt. of Assam.

Before finalization of the planning area, discussion were held with district level officers dealing with developmental works headed by Deputy Commissioner, Hojai and the elected representative of Lumding Municipal Board as well as Hon'ble MLA Lumding Constituency.



1.1

LOCATION:

Lumding is a town in Hojai District of Assam, It is located at Latitude 25.7516" N and Longitude 93.1729" E. It serves as a trade and commerce hub for nearby areas such as Diphu, Maibong, Haflong and Mahur. It is connected to other cities/states such as Guwahati by NH 27.



Location of Lumding Town

1.2 BRIEF HISTORICAL DEVELOPMENT OF LUMDING:

The word 'Lumding' owes its roots to a couple of Dimasa words 'Lama' and 'Ding' connoting 'straight pathway'. The word Lumding is also believed to be from karbi words 'loom' means the 'water from cloud' and 'ding' meaning 'scarcity or Nil'. There's another Railway station adjacent to it with the same root word "Lama" (Path), it is Lamasakhong (Valley of the small pathways) which is just a few kilometers away from Lumding.

Over the years Lumding has developed into township. The railway township had always enjoyed scant rainfall during the rainy season every year, although the trend has significantly altered over the past few decades. Also Lumding was used as a radar station during World War II by British.

Lumding Junction is an important railway junction and railway division in the Northeast Frontier Railway as it connects Tripura to Assam. It used to have both metre gauge and broad gauge. The BG line is of Guwahati–Lumding–Dibrugarh Town and the MG line was the Lumding–Sabroom section. Now BG line is made from Silchar/Sabroom via Lumding to Kolkata as new constructions. MG lines are now completely replaced with BG.

1.3 CLIMATE:

Hills of Lumding puts it to a notable altitude from the sea level, but summers here can burn you up to 34 °C and the winters can be as chilling as 11 °C with fog and mist intervening in the early hours of the day. Monsoon is a notable season here, with rainfall around 915.44 mm at an average. But its hills and altitude prevents any flooding in the region during heavy monsoon. Climate here is favorable for vegetation and agriculture of tropical fruits and vegetables. Fruits like coconuts, pineapple, jack-fruit, papaya, banana are grown here. Cucumber, potatoes, cabbages and other green vegetables are common agricultural vegetables here.

The climate of the Hojai district as well as Lumding town is characterized by a highly humid atmosphere all through the year. The monsoon starts from the month of May and continues up to August. The winter is cool and starts from November and continues up to February. Generally weather is dry. The maximum and minimum temperature varies from 34 Degree C (Max.) 11 Degree C (Min). The maximum rain occurs between July to September and average annual rainfall of Lumding is 915.44 MM.

Table:- 2 Climatic parameters of Lumding

SL.No.	Parameter	Description
1.	Temperature	34 Degree C (Max) 11 Degree C (Min)
2.	Extreme months	May in Summer and December in Winter
3.	Coldest month of the Year	December
4.	Humidity	91 % (Max)
5.	Rainfall	915.44 MM (Annually)
6.	Monsoon Period	24 rainy Days
7.	Winter Season	November to February

1.4 TOPOGRAPHY:

The topography within 2 miles of Lumding Railway Colony contains only modest variations in elevation, with a maximum elevation change of 404 feet and an average elevation above sea level of 481 feet. Within 10 miles contains only modest variations in elevation (1,480 feet). The Town is growing mainly towards Nagaon National Highway-27. Harulongpher Shitalabari, traditional temple of Honda Bengali community, attracts more people during the festival when people offer their prayer.

1.5 CITY INFLUENCE AND ITS CHARACTERISTICS INCLUDING SETTLEMENT PATTERN, RURAL-URBAN SCENARIO, HISTORY OF THE PHYSICAL GROWTH AND EXPANSION OF LUMDING TOWN:

Rural-Urban fringe is an important concept in settlement geography. The rural-urban fringe is the boundary zone outside the urban area proper where rural and urban land uses intermix. It is the area where the city meets the countryside. It is an area of transition from agricultural and other rural land uses to urban use. Located well within the urban sphere of influence the fringe is characterized by a wide variety of land use including dormitory settlements housing middle-income commuters who work in the central urban area. Over time the characteristics of the fringe change from largely rural to largely urban. Suburbanization takes place at the municipal boundary of rural-urban fringe.

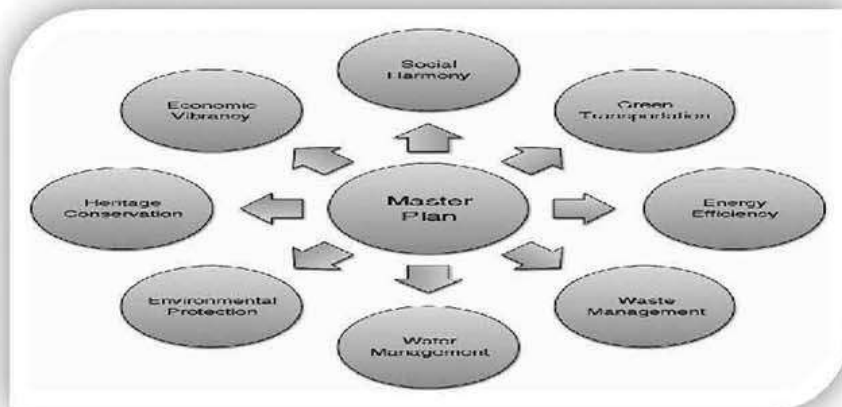
Lumding is the biggest and most important railway junction of the Northeastern Frontier Railway commonly known as NFR. It is also the biggest railway division of NFR as well as the best Railway Township. Like all the other places of North-East,

Lumding is a place of multi-Ethnicity. Most of the people are multi-lingual, although majority of the people are migrated Bengali, the main spoken languages are Bengali, Assamese, Hindi & English besides Nepali, Karbi and Nagamese. Its a small railway township, always bustling with new vigour. The economy is based on the service sector and the main contributors are railway employees residing in the several tiny colonies. The main hindrance to the development is the lack of industry, which in turn increases the magnitude of unemployment. But, it is trying hard to cope up with the pace of rapid modernisation of visual media.

Lumding a Railway township having nearly 50,000 populations consists mainly Bengali Hindu migrants from erstwhile East Pakistan who crosses border during the 1971 Indo-Pak war that ultimately lead to the creation of Bangladesh. There are substantial Assamese population followed by Nepali, Karbi, and Dimasa Populations. It was one of the townships founded by British Raj during the colonial rule in Assam. It is an strategically important place as it is sandwiched between the sensitive two parts of the Karbi-Anglong District. Lumding was one of the place where substantial British presence were there to protect their interests in opium cultivation in Assam, its transportation to Ghazipur for refinement and further processing which were finally exported to China through this route once famous as "LEDO ROAD" or Stillwell Road.

1.6 CONCEPT OF MASTER PLAN:

A master plan is a dynamic long-term planning document that provides a conceptual layout to guide future growth and development. Master planning is about making the connection between buildings, social settings, and their surrounding environments. A master plan includes analysis, recommendations, and proposals for a site's population, economy, housing, transportation, community facilities, and land use. It is based on public input, surveys, planning initiatives, existing development, physical characteristics, and social and economic conditions.



1.7. MASTER PLANNING CAN ASSUME SOME OR ALL OF THESE ROLES:

Develop a phasing and implementation schedule and identify priorities for action:

- Act as a framework for regeneration and attract private sector investment.
- Conceptualize and shape the three-dimensional urban environment.
- Define public, semiprivate, and private spaces and public amenities.
- Determine the mix of uses and their physical relationship.
- Engage the local community and act as builder of consensus.

As city regeneration initiatives are generally long-term propositions, it is important to consider the master plan as a dynamic document that can be altered based on changing project conditions over time

Master plans can have an important role in determining the shape of the urban environment. If not well conceived, they can lead to problems in the future. All of these issues could have been addressed well in advance as part of the master plan.

The proposals for development should be environmentally sustainable. Master Plan is based on inclusive planning. It considers all sections of people in society in development proposals and focuses on affordability. Master plan gives restrictions on ecologically sensitive areas, on heritage sites and traditional built up areas and gives special norms for these places. Master Plan leads to a balanced growth of the city. It prevents concentration of a particular activity at one place and takes into account efficient distribution of facilities, infrastructure, networks and housing and follows neighborhood concept of development.

1.8 NEED OF A MASTER PLAN FOR LUMDING TOWN:

A master plan or a development plan or a town plan may be defined as a general plan for the future layout of a city showing both the existing and proposed Land use plan. A master plan is prepared either for improvement of an old city or for a new town to be developed on a virgin soil. A master plan is a blueprint for the future. It is a comprehensive document, long-

range in its view; that is intended to guide development in the township for the next 20 to 25 years.

It helps in restricting the haphazard and unplanned growth, arranges the pattern of a town in such a way so as to satisfy the present requirements without introduction of future improvements by the coming generations. It also aims at intelligent and economic spending of the public funds for achieving welfare of the inhabitants in respect of amenity, convenience and health.

On the other hand Master Plan also serves as a guide to the planning body for making any recommendations for public improvement. It removes the defects of uncoordinated physical growth of the various components of a town due to the fact that it considers the entire city area or town as planning and development entity.

To check the haphazard and unplanned growth of the town which have come up due to overcrowding of population such as acute shortage of houses, traffic congestion, inadequate open spaces and insufficiency in public amenities etc, to incorporate the unforeseen development and arranges the pattern of township have lead to the thinking of Preparation of GIS based Master Plan for Lumding town.

1.9 LUMDING AS A URBAN LOCAL BODY:

Lumding Municipal Board:- Lumding Town Committee was formed in the year 1985 dated 03/05/1985 and by election the Town Committee was established under the Chairmanship of Lumding Town Committee. The Town Committee was upgraded to Lumding Municipal Board since 01/06/1995 and awarded to Lumding Town by the Government of Assam to establish a Municipal Board for providing the basic infrastructure facilities to the inhabitants of the town. The Town Committee was established and run-in accordance with the provisions laid down in the Assam Municipal Act of 1956. Lumding town comes under the Administration of Lumding Municipal Board with 13 Nos. of wards in the town and as on 2022.

Total area of Lumding Municipal Board is 7.77 sq. km. The 70% area of Lumding town is Railway land. Lumding Municipal Board consists of the Chairman, Vice-Chairman and Wards commissioners who are elected representatives of the 13 nos of wards. The Chairman is the head of the Administration and presides over the meetings of the board. The Executive Officer oversees and administers the plan and execution of the day-to-day activities of the board. Lumding Municipal Board is basically entrusted with the maintenance of roads and drainage system, streets lights, public health facilities and medical, water supply to the inhabitants in the Municipal boundaries in collaboration with PHE Department.

Lumding Municipal Board also maintains recreational parks, libraries, community halls and municipal markets. Lumding Municipality Boards has various sources of revenue collection and also receive annual grants from the Government. It levies taxes on holdings, rickshaws,

carts, cycles, stalls, open spaces, markets and receives taxes on houses, land, water and sanitation. Railway department is also provided basic services in Railway colony area.

Out of 13 nos. of wards in Lumding Municipal Board area ward no: 4, 6, 7, 8,9,12 &13 are in complete Railway land area. 50% area of ward no: 2, 60% area of ward no: 5 and 70% area of ward no: 1,3,10 and 11 are under Railway area. Source of water supply of households are from individual well and tube well. However, one water supply project is under progress to supply water in ward no: 1, 2,3,4 and 5 collecting water from the river Harlanpar by the PHE Department.



Lumding Municipal Board

CHAPTER: 2

DEMOGRAPHY

The scientific or more specifically statistical study of population, its size, density, distribution and growth are known as demography. The study of population and its relating characteristics are the basic factor for long range planning works in a town or a city. The study of change in the population and its distribution and composition are also enabling to force the growth of the urban area. The important demographic aspects like housing facilities, urban infrastructure development both for present and future should be thoroughly studied during the preparation of any development plan.

An analysis of demographic features like growth of population, its distribution & composition etc. is absolutely necessary to assess the various civic needs like housing facilities, urban infrastructure and other basic services and the amenities. These important aspects of demography both present and future have been thoroughly studied at the time of preparation of Lumding Master Plan.

2.1 LUMDING M.B AREA POPULATION, RELIGION, CASTE, WORKING POPULATION etc.

Lumding is a Municipal Board town situated in Lanka circle of Hojai district. The Lumding town is divided into 13 wards for which elections are held every 5 years. As per the Population Census 2011, there are total 6779 families residing in the Lumding town. The total population of Lumding is 31,347 out of which 15,909 are males and 15,438 are females thus the Average Sex Ratio of Lumding is 970.

The population of Children of age 0-6 years in Lumding town is 2547 which is 8% of the total population. There are 1281 male children and 1266 female children between the age 0-6 years. Thus as per the Census 2011 the Child Sex Ratio of Lumding is 988 which is greater than Average Sex Ratio 962 of the state of Assam.

As per the Census 2011, the literacy rate of Lumding is 91.9%. Thus Lumding has higher literacy rate compared to 72.4% of Hojai district and 72.19% of the state of Assam. The male literacy rate is 91.2% and the female literacy rate is 82.28% in Lumding.

Lumding Municipal Board has total administration over 6779 houses to which it supplies basic amenities such as water and sewerage. It is also authorize to build roads within Municipal Board limits and impose taxes on properties coming under its jurisdiction.

2.2 LITERACY OF LUMDING MUNICIPAL BOARD AREA

As per the Population Census 2011 data, following are some quick facts about Lumding Municipal Board.

Table:- 3

	Total	Male	Female
Children	2547	1281	1266
Literacy	91.92%	94.45%	89.31%
Scheduled Caste	1706 (19.52%)	899	807
Scheduled Tribe	147 (0.46%)	80	67
Illiterate	4874	2093	2781

Source : Census of India

2.3 CASTE-WISE POPULATION-LUMDING MUNICIPAL BOARD AREA

Schedule Caste (SC) constitutes 19.52% while Schedule Tribe (ST) were 0.46% of total population in Lumding

Table:- 4

	Total	Male	Female
Schedule Caste	6116	3119	2997
Schedule Tribe	144	74	70

Source: Census of India

2.4 RELIGION-WISE POPULATION-LUMDING M.B. AREA:

As per the Census 2011, the total Hindu population in Lumding is 30479 which is 97.23% of the total population. Also the total Muslim population in Lumding is 455 which is 1.15 % of the total population. Below is religion-wise population of Lumding as per Census 2011.

Table:-5

Religion	Total		Male	Female
Hindu	30479	(97.23%)	15462	15017
Muslim	455	(1.45%)	245	210
Christian	127	(0.41%)	65	62
Sikh	81	(0.26%)	42	39
Buddhist	123	(0.39%)	56	67
Jain	62	(0.20%)	31	31
Other Religion	0	(0%)	0	0
No Religion Specified	20	(0.06%)	8	12

Source: Census of India

2.5 SEX RATIO-LUMDING MUNICIPAL BOARD AREA

The Sex Ratio of Lumding is 955. Thus per every 1000 men there were 955 females in Lumding. Also as per Census 2011, the Child Sex Ratio was 988 which is greater than Average Sex Ratio 962 of the state of Assam.

2.6 LUMDING MUNICIPAL BOARD AREA-WARD-WISE POPULATION

A ward is a local authority area, typically used for electoral purposes. Lumding is further divided into 13 wards where elections are held every 5 years.

Table-6

Sl. No.	Ward	Population	Literacy	Sex Ratio
1	Ward No. - 1	3802	84.03%	983
2	Ward No. - 2	2938	88.97%	970
3	Ward No. - 3	4058	82.16%	988
4	Ward No. - 4	2574	82.94%	919
5	Ward No. - 5	2880	85.10%	1008
6	Ward No. - 6	776	90.46%	1000
7	Ward No. - 7	1646	80.86%	978
8	Ward No. - 8	2189	87.03%	958
9	Ward No. - 9	1202	87.02%	1007
10	Ward No. - 10	1598	85.79%	1010
11	Ward No. - 11	2777	81.74%	958
12	Ward No. - 12	797	83.90%	10811
13	Ward No. - 13	4110	83.90%	910

Source: Census of India

2.7 GROWTH OF POPULATION :

To better understand the trend of growth of population within Lumding Master Plan Area, population had been calculated from the year 1971 Census. The population of Lumding town as per 1971 was 29399 and it has increased to 34423 in 2001 and 36805 in 2011 as per census of India. The population of Lumding Master Plan area shows a steady growth.

Following table shows the growth of population of Lumding Town as well as the Rural area.

Table:7 Trend of Population Growth in Lumding Master Plan Area :

Year	Municipal Area			Rural Area (Excluding Lumding M.B. Area Population)		
	Lumding M.B. Area Population	Total increase	Growth rate per decade	Village Area Population	Total Increase	Growth rate per decade
1951	15278	-	-	1505	-	-
1961	19015	3737	24.46	2515	1010	67.11
1971	21253	2238	11.77	5610	3095	123.06
1981*	-	-	-	-	-	-
1991	23015	1762	8.29	12581	6971	124.26
2001	25263	2248	9.77	17182	4601	36.57
2011	31347	6084	24.08	24137	6955	40.48

Source : Census of India and T&CP Nagaon Survey Team Compilation

2.8 POPULATION CHARACTERISTICS:

Table:- 8 Existing population of Lumding Master Plan Area as per 2011 census

Sl. No.	Master Plan Area 2045	Population (2011)	P.C (%)
1	Lumding Municipal Area (13 wards)	31347	56.50%
2.	17 Villages	24137	43.50%
	Total Population	55484	100 %

Source : Census of India

The total population of Lumding Master Plan area as per 2011 census is 55484 out of which 31347 i.e 56.50% within municipality area covering 13 Nos. of wards and rural area population is 24137 which is about 43.50% of the total planning area population.

Table :- 9 Village Wise Population and occupied residential houses of Lumding M.P. Area as per Census, 2011

Sl. No.	Locations/Villages	Population 2011	Male	Female	Households	Area in sq. Km.
1	Jarang Disha	4706	2416	2290	972	2.9
2	Jarang Disha No. 1	1582	794	788	323	1.0
3	Jarang Disha No. 2	828	424	404	136	1.7
4	Dakhin Lumding	827	424	403	151	1.7
5	Dakhin Lumding Part- 1	521	274	247	111	2.8
6	Kangar Gaon	2638	1378	1260	533	1.4
7	Kangar Gaon No. 1	2186	1117	1069	401	1.7
8	Sadhukhuti No. 1	677	367	310	127	7.1
9	Sadukhuti No.2	264	127	137	51	3.1
10	Hati Khali	216	110	106	50	7.9
11	Hati Khali No. 1	1315	695	620	248	1.1
12	Hati Khali No. 2	187	104	83	32	5.1
13	Hati Khali No. 3	2010	1091	919	412	3.2
14	Mora Basti	1458	756	702	299	1.4
15	Pub Lumding	1853	928	925	348	2.0
16	Pub Lumding Part-1	628	316	312	130	7.6
17	Pub Lumding Part-2	2241	1169	1072	407	2.8
Total		24137	12490	11647	4731	

Source : Census of India

As per census 2011, total nos. of wards under Lumding Municipal Board was 09 nos. and population was 31347, but the nos. of wards has increased to 13 nos. in the year of 2022

2.9 DENSITY OF POPULATION:

The number of population and the size of development of the town or city imply the density of population. Generally, the pressure of population from rural to urban area increases in search of better jobs, educational facilities, source of income, trade and commerce etc.

The density of population of Hojai District as per 2001 was 512 persons per sq. km. and it has increased to 640 persons per sq. km in 2011 census. The density of population of lumding Town as per 2011 census was 4034 persons per sq.km and rural area density of population was 540 persons per sq. km.

2.10 SIZE OF THE HOUSEHOLD:

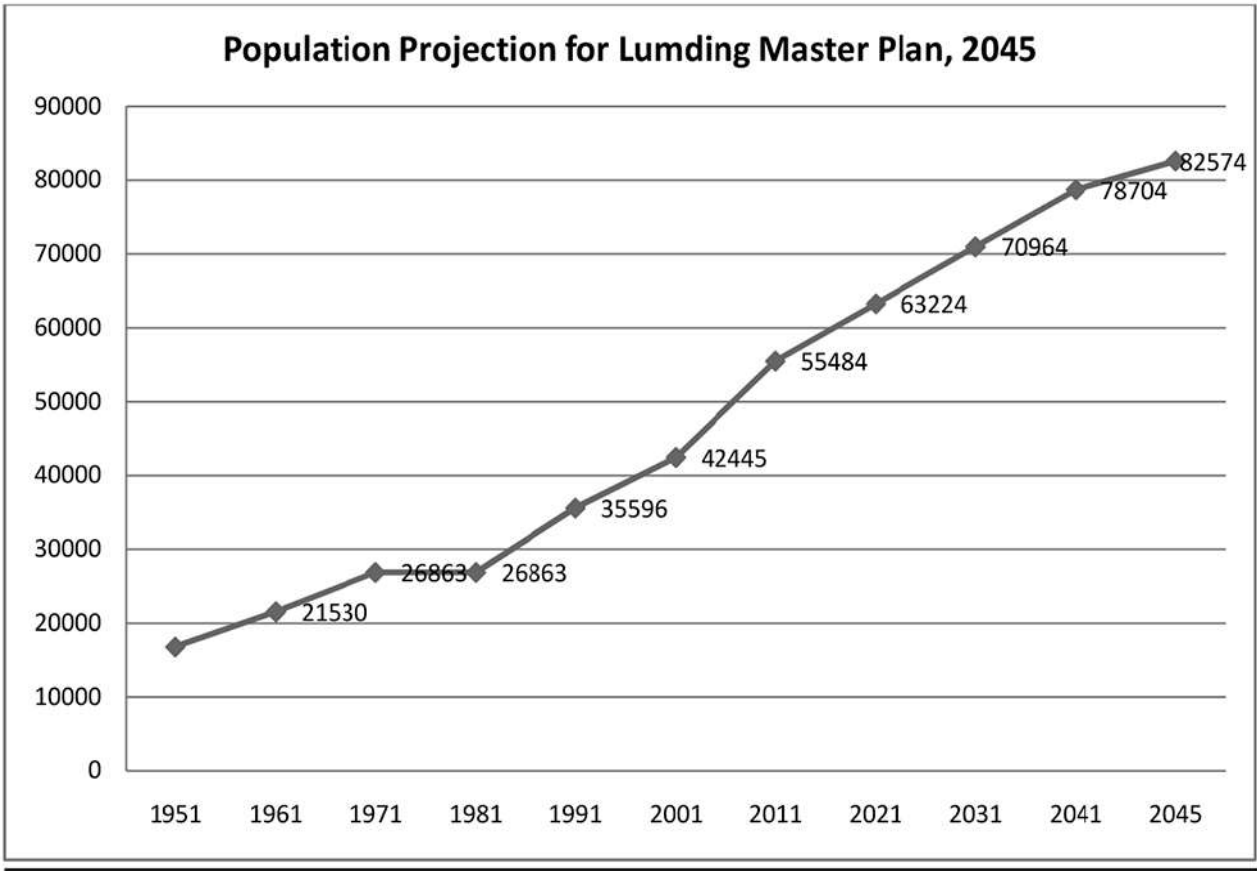
The 2011 Census shown that more than half of the household in the region were medium sized with an average member more than 5.5 Nos. According to census 2011, the medium sized households 5 to 5.5 is predominant because of the increasing trends towards nuclear households densely settled and rapid urbanization are at higher rate, there will be considerable pressure on housing in coming future. The overall household size of Lumding Master Plan Area is 5.60, where as the Household size is Lumding M.B is 5.52 and Village areas is 5.65.

2.11 POPULATION PROJECTION FOR THE YEAR 2045:

Population projection is a scientific/mathematical attempt to peep into the future population scenario, conditioned by making certain assumptions using data to the past available at the point of time. It is mandatory for Government policy makers and planners to determine the future demand for basic human needs such as food, water, education, health, energy, and other services and to forecast future demography characteristics. The population projection of Lumding Master Plan area done by utilizing the maximum possible accuracy methods like Arithmetic Increase method and Incremental Increase Method to determine the future population which are shown in the table below :

Table: 10 Population Projection of Lumding Master Plan Area, 2045

Year	Municipal Area						
	Lumding M.B.Area Population	Total increase	Village Area population	Total increase	Total Population in the Planning Area	Total Increase in the Planning Area	Growth rate (%)
1951	15278	-	1505	-	16783	-	-
1961	19015	3737	2515	1010	21530	4747	28.28
1971	21253	2238	5610	3095	26863	5333	24.77
1981*	-	-	-	-	-	-	-
1991	23015	1762	12581	6971	35596	8733	32.51
2001	25263	2248	17182	4601	42445	6849	19.24
2011	31347	6084	24137	6955	55484	13039	30.72
2021	34561 (P)	-	28663 (P)	-	63224 (P)	-	-
2031	37775 (P)	-	33189 (P)	-	70964 (P)	-	-
2041	40989 (P)	-	37715 (P)	-	78704 (P)	-	-
2045	42596 (P)	-	39978 (P)	-	82574 (P)	-	-



CHAPTER: 3

ECONOMIC BASE AND EMPLOYMENT:

The economic base deals with how a community earns its living. It consists of that proportion of employment and income generated in a local community that determines the overall level of production. The growth, decline or stagnation of the local community rests upon the basic economic activity, which goes beyond local needs.

There are several measures of economic activity, but employment and income are the most commonly used in actual case studies. Information about employment and income values are the easiest to find at the county level.

Employment comprises all persons of working age who during a specified brief period, such as one week or one day, were in the following categories of paid employment (whether at work or with a job but not at work); or self-employment (whether at work or with an enterprise but not at work).

The working- age population is the population above the legal working age, but for statistical purposes it comprises all persons above a specified minimum age threshold for which an inquiry on economic activity is made.

The classification by economic activity refers to the main activity of the establishment in which a person worked during the reference period. The branch of economic activity of a person does not depend on the specific duties or functions of the person's job, but on the characteristics of the economic.

3.1 FORMAL SECTOR EMPLOYMENT:

Formal sectors represent all jobs with specific working hours and regular wages and the worker's job is assured. The workers are employed by the government, state or private sector enterprises. It is a licensed organization and is liable to pay taxes. It includes large-scale operations such as banks and other corporations.

From the raw data and T&CP, Nagaon survey team report it is found that out of the total working population in Lumding town area only about 36 % populations are engaged in the formal sector of employment.

3.2 INFORMAL SECTOR EMPLOYMENT:

Employees are considered to have informal jobs if their employment relationship is, in law or in practice, not subject to national labour legislation, income taxation, social protection or entitlement to certain employment benefits (advance notice of dismissal, severance pay, paid annual or sick leave, etc.). The underpinning reasons may be the non-declaration of the jobs

or the employees; casual jobs or jobs of a short duration; jobs with hours of work or wages below a specified threshold (e.g. for social security contributions); or lack of application of law and regulation in practice. In the case of own-account workers and employers, the informal employment status of the job is determined by the informal sector nature of the enterprise. Employers (with hired workers) and own-account worker (without hired workers) are considered to be informal when their economic units belong to the informal sector. All contributing family workers are classified as having informal employment, irrespective of whether they work in formal or informal sector enterprises.

Table : 11 Formal and Informal sector employment in Lumding M.B.Area

Sl. No.	Categories	Nos.	P.C
1	Working population	10751	34 %
2	Non working population	20596	66 %
3	Formal sector employment	4300	40 %
4	Informal sector employment	6451	60 %

From the table, it is seen that out of the total working population of 10751, about 40 % populations in Lumding town area are engaged in formal and 60 % populations are engaged in informal sector of employment.

3.3 OCCUPATIONAL PATTERN :

According to Census of India, worker is defined as person who does business, job, service, and cultivator and labour activity. The capacity of an urban area to provide variety of jobs, absorb its working population in various sectors of economy is an indicator of the economic viability of the urban area. The participation rate also gives us an idea of the share of gainfully employed persons against the dependent and non-working population. Generally the participation rate in the urban area is high compared to the rural area.

Occupation pattern is different of the peoples of Lumding Master Plan Area. The rural peoples are mainly based upon the primary sector activities like agricultural and allied activities such as Horticulture, Forestry, Fishery, Animal Husbandry (dairy, poultry, and goat), and Floriculture etc.

On the other hand urban livelihoods are based upon secondary and tertiary activities like manufacturing and services etc.

Total working population of Lumding is 10751 which are either main or marginal workers. Total workers in the town/city are 10751 out of which 9304 are male and 1447 are female. Total main workers are 9174 out of which male main workers are 8163 and female main workers are 1011. Total marginal workers of Lumding are 1577. Table below depicts the working population of Lumding MB Area.

Table:- 12 Lumding town Working Population ---Census 2011

	Total	Male	Female
Total Workers	10751	9304	1447
Main Workers	9174	8163	1011
Main Workers Cultivators	122	109	13
Agriculture Labourer	129	122	7
Household Industries	126	106	20
Other Workers	8797	7826	971
Marginal Workers	1577	1141	436
Non Working Persons	20596	6605	13991

Source:-Lumding Town Working Population as per Census, 2011

CHAPTER: 4**HOUSING AND SHELTER**

Housing is one of the most important life components giving shelter, safety and warmth, as well as providing a place to rest. Housing or quality of life is more dependent on some elements of housing areas such as disposition of various working areas, layouts development of land, provision of roads, water supply system, sewerage, drainage and provision of basic amenities like shops, schools, parks and play grounds etc. The urban form and character emerges from the quality of housing areas and inter relationship of housing areas with work centre and other non- residential areas.

Housing is a major element of people's material living standards. It is essential to meet basic needs, such as for shelter from weather conditions, and to offer a sense of personal security, privacy and personal space. Good housing conditions are also essential for people's health and affect childhood development.

The urban housing is mainly restricted to within the Municipal boundaries. The residential areas outside the municipal areas are rural housing. Normally the rate of housing spread of town should range between 6-7 hectare per 1000 persons and the rate of housing spread within the Master Plan Area is around 22 Hectare per 1000 persons.

Table :- 12 Ward wise population distribution and Nos. of Households of Lumding Municipal Area.

Ward No.	Population as per 2011	Nos. of Household	Housing Size
Ward No. 1	3802	602	5.9
Ward No. 2	2938	587	5.0
Ward No. 3	4058	685	5.9
Ward No. 4	2574	431	5.9
Ward No. 5	2880	689	4.1
Ward No. 6	776	155	5.0
Ward No. 7	1646	381	4.3
Ward No. 8	2189	438	4.9

Ward No. 9	1202	240	5.0
Ward No. 10	1598	352	4.5
Ward No. 11	2777	574	4.8
Ward No. 12	797	172	4.6
Ward No. 13	4110	885	4.6

Table:- 12 Village Wise Population and occupied residential houses of Lumding M.P. Area as per Census, 2011.

Sl. No.	Locations/Villages	Population 2011	Male	Female	Households	Area in sq. Km.
1	Jarang Disha	4706	2416	2290	972	2.9
2	Jarang Disha No. 1	1582	794	788	323	1.0
3	Jarang Disha No. 2	828	424	404	136	1.7
4	Dakhin Lumding	827	424	403	151	1.7
5	Dakhin Lumding Part- 1	521	274	247	111	2.8
6	Kangar Gaon	2638	1378	1260	533	1.4
7	Kangar Gaon No. 1	2186	1117	1069	401	1.7
8	Sadhukhuti No. 1	677	367	310	127	7.1
9	Sadukhuti No. 2	264	127	137	51	3.1
10	Hati Khali	216	110	106	50	7.9
11	Hati Khali No. 1	1315	695	620	248	1.1
12	Hati Khali No. 2	187	104	83	32	5.1
13	Hati Khali No. 3	2010	1091	919	412	3.2
14	Mora Basti	1458	756	702	299	1.4
15	Pub Lumding	1853	928	925	348	2.0
16	Pub Lumding Part-1	628	316	312	130	7.6
17	Pub Lumding Part-2	2241	1169	1072	407	2.8
Total		24137	12490	11647	4731	

Source: Census of India, 2011

4.1 HOUSING CONDITION:

Housing is a major element of people's material living standards. It is essential to meet basic needs, such as for shelter from weather conditions, and to offer a sense of personal security, privacy and personal space. Good housing conditions are also essential for people's health and affect childhood development.

Housing condition includes the study of housing base on type of structure i.e., permanent/ semi- permanent, physical infrastructure, mass space relationship, condition of the material use for walls and floors etc. It is important to be studied because it indicates the efficiency and sustainability of the housing stocks, whether the houses are livable or not. Based on the above said parameters, the condition of houses has been segregated and the analysis is done as good, livable and dilapidated houses of Lumding Municipal Area comparing with Hojai District.

Table No:- 13 Housing condition

Residence (%)				
Area	Total	Good	Livable	Dilapidated
Assam	62,72,151	33%	56%	11%
Hojai District	1,30,577	34.8%	57.4%	7.9%
Lumding M.B	4731	52.1%	46.3%	1.6%

Source : Census of India, 2011 and T&CP, Nagaon Compilation

4.2 CONSTRUCTION OF MATERIAL OF HOUSE

The survey carried out by Town and Country Planning, Nagaon in 2020-21 and as per Census of India, 2011, it is found that the overall housing condition in the Lumding Master Plan area is quite satisfactory but the distance between nearest settlement neighborhood is very less. The settlement pattern is very compact. Though the percentage of Good Housing Condition is high (52.1%) but the livable condition household is needed to be upgrade in the Lumding Municipal Area. The percentage of R.C.C structure is only confined in the Town area, specially the Market stores, Banks, Hotels along the major roads of the town and also some residential Buildings in the town area. Housing condition in the village areas were basically Livable and semi pucca type.

The following table shows the condition of existing housing stocks of Lumding Master Plan Area.

Table:- 14 Materials used for roof

Area Name	Total Number of HHs	Grass/ Thatch/ Wood/ Mud	Plastic Polythene	Hand made Tiles	Machine made Tiles	Burnt Brick 27	Stone/ State 28	G.I./Metal/ Asbestos/ sheets 29	Concrete 30	Any other Material 31
State	62,72,151	18.60 %	2.10 %	0.70 %	0.3 %	0.1 %	0.80 %	74.20 %	2.90 %	0.20 %
Hojai District	1,30,577	24.1 %	0.2 %	0.3 %	0.1 %	0.1 %	1.6 %	70.4 %	3 %	0.2 %
LMB	4731	3.2 %	0.1 %	0.1 %	0 %	0.4 %	2.5 %	87.5 %	6.1 %	0.2 %

Source : Census of India, 2011

Table:- 15 Materials used for walls

Area Name	Grass/ Thatch/ Bamboo etc.	Plastic/ Polythene	Mud/ Unburnt Brick	Wood	Stone not packed with mortar	Stone packed with mortar	G.I./Metal/ Asbestos sheets 38	Burnt Brick	Concrete	Any other Material
State	66.40 %	0.60 %	3.60 %	1.60 %	0.70 %	1.40 %	1.10 %	21.20 %	2.90 %	0.50 %
Hojai District	65.8 %	0.5 %	5.1 %	2.3 %	1.5 %	4 %	0.2 %	17.4 %	2.7 %	0.6 %
LMB	48.3 %	0.6 %	1.3 %	0.7 %	2.4 %	4.2 %	0.2 %	33.1 %	7.5 %	1.6 %

Source: Census of India, 2011

Table:-16 Materials used for floor

Area Name	Mud	Wood/ Bamboo	Burnt Brick	Stone	Cement	Mosaic/ Floor Tiles	Any other material
State	78.60 %	2.10	1.20	0.40	16.60	1.00	0.10
Hojai District	83 %	0 %	1 %	0 %	15 %	0 %	0 %
LMB	37.3 %	1.1 %	2.4 %	0.3 %	58.6 %	0.4 %	0 %

Source: Census of India, 2011

4.3 AVAILABILITY OF BATHROOM AND LATRINE

As per 2011 Census about 97.7% of households have sanitary latrine and Bathroom and 89% of the households have other type of latrine in the Lumding Master Plan Area.

4.4 HOUSING STOCK AND FUTURE REQUIREMENT :

The housing requirement is more in the urban area than that in the rural areas. Almost all people in rural area have got their own house. The total housing stock and future requirement of houses up to 2045 in the Lumding Master Plan Area were calculated based on the city/town level data on the houseless population and pavement dwellers, the houseless population is derived from the data published as part of Census of India, 2011. The total requirement of dwelling unit in the planning area as per the planning norms is as follows:

4.5 HOUSING REQUIREMENT FOR FUTURE POPULATION OF LUMDING TOWN AREA TILL 2045 :

42596-31347 Nos. =11249

Assuming family size of 5 persons, new houses will be required
 $11249/5 = 2250$ Nos.

Housing Requirement for future Population of Lumding Rural Area till 2045.
 39978-24137=15841

Assuming family size of 5 persons, new houses will be required
 $15841/5 = 3168$ Nos.

Housing Requirement for future Population of Lumding Master Plan Area till 2045
 82574-55484 = 27090 Nos.

Assuming family size of 5 persons, new houses will be required
 $27090/5 = 5418$ Nos.

Table:- 17 Total housing stock and future requirement of Houses:

Sl. No.	Area	Total no. of housing stock as per 2011	Housing requirement up to 2045
1	Lumding M.B Area	11249	2250 Nos.
2	Rural Area	15841	3168 Nos.
Total		27090	5418 Nos.

CHAPTER: 5

TRANSPORTATION :

An effective transport system offers social, economic, political and cultural advantages like accessibility to markets, infusion of investors, distribution of resources, etc that result in an indirect impact on the growth and development of a country. It can be measured in terms of added value and employment .A mode of transport is a solution that makes use of a particular type of vehicle, infrastructure, and operation. Transportation plays a major role in the daily life of human beings. It is necessary for things to be moved around and as transportation systems have developed over time, the speed and efficiency of these systems have improved drastically.

The importance of transportation is showcased in how individuals, businesses, and governments rely on it to access resources. A society cannot function optimally if it does not have measures in place to facilitate transport. From movement to work to travel around the world, being able to arrive at various places or deliver different items on time is vital for overall productivity and sustainable development.

In consideration of healthy growth, economic prosperity and improved living standards of a town or a city, a high- quality transportation network is essential. In addition, transportation and land use are to be integrated to achieve reduction in trip length, increase in public transports usage etc.

5.1 TRANSPORTATION NETWORK:

5.1.1 Regional Connectivity of Lumding:

Lumding is well connected to Assam major cities like Lumding, Nagaon, Guwahati, Shilchar, Diphu, Haflong through PWD roads to State highways via National highways which further connects to rest part of Assam in particular and India as a whole.

5.2 NETWORK OF ROAD:

Roads are part of urban and rural infrastructure. These roads are required for both intra-city and intercity movement and render much higher level of service compared to Regional Roads, State Highways and National Highways. Quality of life is depends on efficient and effective road system, of course, with the support of other infrastructural services such as water supply, sewerage, drainage, electricity, telephones etc. in order to perform social, economical & cultural activities.' Urban transportation network is required to facilitate movement of people and goods and therefore efficient network is necessary for their efficient movement. Importance of Urban roads is increasing on account of the fact that urban areas are increasing in their size and number.

5.3 INTERCITY CONNECTIVITY (From Lumding):

Lumding has the intercity connectivity by road as well as by rail. The table below shows to various modes of transportation and its connectivity with the nearest towns/cities like Lumding, Nagaon, Guwahati, Shilchar, Diphu, Haflong, Hamren, Chaparmukh Jn. etc.

Table-18: Modes of transportation and its connectivity with the nearest cities/ towns.

Urban centres from Lumding	Distance (KM.)	Time (hrs.)	
		By Road	By Rail
Nagaon	98.4 km.	2hr. 3 min.	3 hr. 9 min.
Silchar	269 km.	8 hr. 59 min.	7 hr. 50 min.
Dibrugarh	346 km.	8 hr. 32 min.	8 hr. 5 min.
Lumding	53.6 km.	1 hr. 9 min.	48 min.
Haflong	166 km.	4 hr. 47 min.	-
Guwahati	215 km.	4 hr. 17 min.	3 hr. 35 min.
Diphu	39 km.	1 hr.	53 min.
Hamren	100 km.	2 hr. 57 min.	-

Modes of transportation

Table :- 19: Road Length (in Km) of Lumding M. B. Area

Name of M.B	Total Length	SURFACED						UNSURFACED			
		WBM	Black Top	Cement Concrete	Brick Soilin g	Paver Block	Total	Gravelling	Kutcha (Motorable)	Kutcha (Non Motorable)	Total
1	2	3	4	5	6	7	8	9	10	11	12
Lumding MB	55.874	0.300	8.472	6.919	9.607	11.488	36.786	0.801	8.149	10.138	19.088

Table-20: Road connectivity and Distance:

Sl. No.	Road type	Connectivity	Distance
1	National Highway-27	Lumding to Nagaon via Doboka	98.4 km.
2	State Highway-329	Lumding to Diphu	39 km.
3	National Highway-27	Lumding to Lumding	53.6 km.
4	National Highway-27	Lumding to Haflong via Maibang	117 km.
5	National Highway-27	Lumding to Sankardev Nagar via Lanka	47.4 km.

5.4 OVERVIEW OF CRITICAL ROADS :

The identification of critical road links is greatly important to the management and control of the transportation system. Existing works fail to fully consider the influence of the distribution of traffic flow and its dynamic characteristics on critical road link identification.

The study of critical roads mainly depends upon several factors like traffic conditions, road geometry characteristics, environmental factors etc. Field traffic surveys were carried out to capture the classified volume count for major arterial, sub-arterial and collector roads spread across Lumding Town. Based on the field survey data and traffic volume survey conducted by the T&CP, Nagaon at some major points were ascertained during peak hours. The critical roads in Lumding town as well as the Lumding Master Plan Area is identified the PWD road Lumding to Diphu, Lumding to Haflong, are urgently need to decongest and future plan for widening and improvement to ensure free flow of traffic movement in Lumding Master Plan Area.

5.5 ANALYSIS OF TRAFFIC NODES:

The major traffic nodes in Lumding town are identified which are detailed as table-20 below:-

Area	Location of point	Description
Lumding Town Area	(i) Lumding Tiniali point	This is a commercial place consist of some shops, daily vegetable market and entry to Lumding Circle Office towards south, and daily market towards southwest.
	(ii) Lumding / Eta bhata Chariali	It is also a business center consist of variety of major shops, Pubic gathering Place entry to Lumding Munuicipal Board, Post Office, Police Station etc also.
	(iii) Lumding Kalibari point	It is a fully busiest daily Market area, also way to Haflong, Umrangso and connected to Shillong Road.
	(iv) Lumding Town Food market Chariali point	It is an important traffic intersection and transfer point and consist of commercial and business activities. It is a place of traffic congestion with NH-27 Road and entry to Lumding Town, A Bricks factory and a some residential areas.

5.5.1 BUS TERMINUS:

Public and Private Bus stands are most temporarily located at some busy road sides of Lumding town which causes the traffic congestion and traffic hindrance. The bus stands located at different places of the town and their characteristics are as given table-21 below :-

Terminal Centre	Location	Observation
A. Inter-City	Bus Station	
1. Passenger	i) Lumding- BUS Stop	Located Lumding Kalibari Road. Parking space is not sufficient. Waiting shed, toilet facilities should be extended. Passenger's guest house facilities should be provided.
	ii) Lumding – Bot / Peepal Tree Auto Stand, Near Modern Games Club	Very congested. Parking space is very narrow. Waiting shed and toilet facilities are nil. Immediately this bus station should be shifted.

5.5.2 Railway:

Lumding railway division is one of the five railway divisions under Northeast Frontier Railway zone of Indian Railways. This railway division was formed on 1 May 1969 and its headquarter is located at Lumding in the Hojai district state of Assam in India. It is the 2nd biggest railway station of Lumding railway division, after Guwahati.

Lumding Junction is one of the busiest railways Junction of North East Frontier Railway. This station is well equipped with all modern amenities. Station is comparatively clean and well maintained. Lots of food stalls are available 24x7.

Lumding is connected by Indian Railways network. There are several trains plying from Guwahati and many other states of India via Lumding Railway Station and passes through Lumding to Lumding, Assam. The North - East Frontier Railway Broad gauge Line from lower Assam to Upper Assam connects Lumding to the rest of the other places. Lumding Railway Station, Lumding Railway Junction and Chaparmukh Rly. Jn is the nearest junction of Lumding Railway station. At present, electrification network with dual track of whole North-East Frontier Railway is under progress under Ministry of Indian Railways, Govt. of India.



Lumding Railway Station



5.6 TRAFFIC VOLUME SURVEY

The traffic volume survey in around the particular town or the city is urgently required to find out the possible solutions and improvement suggestions for the problem identified. The objectives covered in it include identifying hourly distribution of vehicles and peak hour identification of the level of service and compare model composition on different hierarchy of roads etc.

The traffic volume survey conducted by the T&CP, Nagaon only at some main points and it is restricted only to peak hour survey from 9-00 a.m to 11.00 a.m to identify better and efficient traffic operation plan. The following table shows the traffic volume of the 4 (four) main points within Lumding Master Plan Area.

Table :- 22 : Traffic Volume Survey within Lumding Master Plan Area

Name of the survey point	Time: 9:00 A.M to 11:00 A.M							
	In coming				Out going			
	Fast moving		Slow moving		Fast moving		Slow moving	
	Vehicle	Number	Vehicle	Number	Vehicle	Number	Vehicle	Number
1 Lumding / Eta bhata Chariali	Bus/M. bus-	12	Bi-cycle-	138	Bus/M bus-	14	Bi-Cycle-	128
	Trucks-	18			Trucks	19		
	Scotr/M.cycle-	132	Thela	7	Sctr/M.cycle	66	Thela	9
	Car	20			Car	43		
	Tata Sumu/ Majik	15			Tata Sumu/ Magic	27		
	Tempo/Auto-	40			Tempo/Auto	42		
	Total	237	Total	145	Total	211	Total	137
2 Lumding Kalibari point	Time: 9:00 A.M to 11:00 A.M							
	In coming				Out going			
	Fast moving		Slow moving		Fast moving		Slow moving	
	Vehicle	Number	Vehicle	Number	Vehicle	Number	Vehicle	Number
	Bus/M. bus-	13	Bi-cycle-	176	Bus/M bus-	14	Bi-Cycle-	157
	Trucks	12		25	Trucks	12		
	Scotr/ M.cycle	73	Thela	5	Sctr/M.cycle-	178	Thela	10
	Car-	106			Car	157		
	Tata Sumu/ Majik	24			Tata Sumu/ Majik	18		
	Tempo/Auto-	42			Tempo/Auto-	45		
	Total	270	Total	181	Total	324	Total	167

3	Lumding Food market Chariali	Time: 9:00 A.M to 11:00 A.M							
		In coming				Out going			
Vehicle	Number	Fast moving		Slow moving		Fast moving		Slow moving	
		Vehicle	Number	Vehicle	Number	Vehicle	Number	Vehicle	Number
Winger/M.bus-	5			Bi-cycle-	126	Winger/M bus-	15	Bi-Cycle-	115
Trucks-	17					Trucks	12		
Scotr/Mcycle	45			Thela -	12	Sctr/M.cycle	46	Thela	16
Car	54					Car	117		
Tata Sumu/ Majik-	11					T. Sumu/ Majik	15		
Tempo/Auto-	28					Tempo/Auto	16		
Total	160	Total	138	Total	221	Total	131		

4	Lumding Tiniali point	Time: 9:00 A.M to 11:00 A.M							
		In coming				Out going			
Vehicle	Number	Fast moving		Slow moving		Fast moving		Slow moving	
		Vehicle	Number	Vehicle	Number	Vehicle	Number	Vehicle	Number
Winger/ M. bus	28			Bi-cycle-	138	Winger/M bus-	12	Bi-Cycle -	97
Trucks	07					Trucks -	14		
Scotr/ M.cycle-	128			Thela-	16	Sctr/M.cycle-	109	Thela -	10
Car-	27					Tata Sumu/Majik-	33		
Tata Sumu/ Majik-	51					Tempo/Auto-	25		
Tempo/ Auto-	37					Car	58		
Total	278	Total	154	Total	251	Total	107		

SOURCE : Survey Conducted by Town and Country Planning, Nagaon

5.7 PARKING:

Vehicle parking is a major problem in urban areas. With rapid growth of the urban area, the parking generation rate goes on increasing very quickly which creates major problems of parking in most of the urban areas. In the recent years, with the rapid development of economy and exorbitant increase in the motor-vehicles, parking problems in urban area have become increasingly prominent.

On street parking is found all over Lumding Town, parking usually spills over to other use areas like road carriageway and footpaths, open spaces. In turn they affect safety and environmental quality. Parking characteristics within the town vary by areas, by land use activities and by time period. In residential areas it is by time period.

At present there is no Municipal identified parking area designated for public and private parking within Lumding town as well as Planning Area.. As per parking survey conducted by the Town and Country Planning, Nagaon it is observed that on street parking is found all over Lumding town. On- Street parking is observed to be high on Lumding Lanka Road towards North-West and Hatikhuli Area. On street parking at different places of Lumding town.

5.8 MAJOR ACCIDENT PRONE AREA:

As per records available from the Lumding Municipal Board and field verification it is found that there are frequent accidents are being happened in Lumding Town due to non traffic signal points and uncontrolled speed of the vehicles. Major accident prone areas of Lumding town are mentioned as below:

1. Near Lumding Railway School.
2. Lumding Eta bhata Chariali.

5.9 TRANSPORTATION ISSUES AND REQUIREMENTS:**5.9. 1 ILLEGAL VENDING ZONE :**

- One of the major issues is of illegal vending on walking shoulders on the main streets.
- Due to illegal vending sometimes the actual accessible patch of road decrease to half lane only.
- If proper spaces are being allocated to street vendors in every zone the issue can be eliminated.
- Due to illegal possession of shoulders the pedestrian come down to road for their local trip and some time proves unsafe on congested area.
- Narrow road network with restricted capacity, particularly due to the illegal vending, resulting in congestion and loss of productivity.
- The problematic areas include intersection Lumding Near fruit market Bazar.

The photographs below depict the current scenario of the illegal vending zones which restricted the capacity of road resulting lead to congestion.

5.9.2 TRAFFIC CONGESTION:

- Traffic congestion is quite common in Lumding Town and it takes a lot of time to commute for the commuters.
- At many places geometry of the town is very less as they have not followed any norms and standards for the road pattern as well as for other related things like road cross sections and railway level crossing etc.
- Observed encroachments on the footpath by vendors, which acutely rise the traffic congestion between include intersection Lumding Link Road, Lumding Fruit market Area, Lumding Railway Station Area have this illegal vending and parking on both sides of the road and the resultant traffic need to resolve.

The highlighted light pink dots on map within town area shows the frequent congested road patches.

5.10 ROAD ENCROACHMENTS :

- Many factors can be listed out for such happenings, but few observations are mentioned below, which are
- Unauthorized parking of vehicle on pavement only.
- Many spots with exposed electric poles on pavement sides which leads to make space dead and potential for parking wheels.
- The town suffers from parking problems due to encroachment by vendors on road and off-street parking. As a result, the road width decreases and there is no space remaining to pass the vehicles or to give space to other vehicles.
- There is no designated space for parking in whole town,
- There are encroachment issues in areas namely both sides of Lumding Diphu Road to Lumding NH-27 Link Road, Near Lumding Railway station Area.
- Due to lack of space, it is difficult for vehicles to pass on.
- Also, Proper facilities are needed for loading, uplifting, and downloading.
- Encroachment on both sides of the road decreases the effective width which may cause road accidents and disturbs the smooth flow of traffic.

5.11 TRAFFIC SIGNAL POINTS :

There is no organized traffic signal points in Lumding town. Various junctions without traffic signals are there in the town area like- Lumding NH Kalibari point, Norleny par point, Lumding Fruit market point and Crossing Gate point, resulting in unnecessary traffic jams and more requirement of traffic brigade occurs.

*CHAPTER: 6***INFRASTRUCTURE, PUBLIC UTILITIES & SERVICES**

The development pressure on towns and cities is increasing with the rising urban population and growth of urban areas. The development of cities in itself is dependent upon the public infrastructure services. The creation of urban infrastructure is expensive and time consuming. Therefore it requires the Government to play a major role in making lumpy investments.

A country's economic and social development is directly dependent on a country's infrastructure. Many developed countries make a lot of progress because of the enormous growth of economic and social infrastructures. A good infrastructure makes the work process easier, resulting in a positive and high productivity.

Urban infrastructure development is the foundation of every city and remains the key to ensuring basic services like water, sanitation, drainage, energy, and transport. With proper and planned urban infrastructure development, residents can enjoy better living conditions & live healthier lifestyles while benefiting from enhanced environmental sustainability.

Social Infrastructure is a subset of the infrastructure sector and typically includes assets that accommodate social services like Health, Education, Housing, Civic and utilities, Transports etc.

6.1 SOCIAL INFRASTRUCTURE:

Social infrastructure plays an important role to provide quality of life to the residents of the city. The effectiveness of social infrastructure in achieving the objective of city development plan would depend upon its capacity to contribute to improvement in the quality of life, enhanced self-dependency and city's sustainability. The level of social infrastructure shall aim the creation of liveable city through reducing the sense of alienation among the residents with less dependence on other settlements for basic infrastructure.

Social infrastructure refers to the facilities and mechanisms that ensure education, health care, community development, and social security, recreational and social welfare. The development cannot be looked at in isolation without considering the basic needs of the people, and a significant level of investment is needed in this sector. Usually this development referred to as the commitment towards realizing the vision of the city.

6.1.1 EDUCATION

Education is an important factor influencing the quality of life of the people and future development of an area. It empowers them with skills and knowledge and helps them to

better lead their life and access best of the employment opportunities available in the market. This in turn will impact the work force participation rate and economy of the area. There are many government and private schools, colleges in Lumding town. The existing scenario of Primary, Middle school and Higher secondary school and Govt. and private Colleges in Lumding area is shown in the table given below:

Table20: Educational Facilities available in Lumding Master Plan Area

Sl. No.	Category of Educational Institutions.	Total Number of Institutions within Lumding Master Plan Area.	Enrolment	Teachers
1	Lower Primary Schools	37	2207	124
2	Middle School	8	1382	56
3	High School	15	2987	140
4	Higher Secondary School	6	975	83
5	i) Lumding College	1	369	-
	2) P.V.M. Women Junior Colleges	1	214	9

Source: Inspector of Schools, Elementary and Higher education



Lumding College

6.1.2 HEALTH:

Health facilities are places that provide health care. They include hospitals, clinics, outpatient care centers, and specialized care centers, such as birthing centers and psychiatric care centers. Health facilities are very poor in Lumding town Area compared with the village Area. It is not sufficient to meet the needs of the demand of the peoples. There is no Private Nursing Home and Maternity Centre in the town. As per data available following table shows the medical facilities within Lumding Master Plan Area.

Table :- 21 : Medical facilities within Lumding Master Plan area

Sl. No.	Lumding Planning Area	Health Centres	No. of Beds
1.	Lumding M. B. Area	1. FRU, Lumding	
		2. Lumding Railway Hospital.	-
		3. Sub Centre Khangar gaon	

Source: Lumding M.B. and T&CP survey

6.1.3 WATER SUPPLY:

Water supply system in Lumding town is processing by Urban Water supply scheme. Piped water is supplied to a section of the people of the town area and rest of the population depends upon individual source of water like ponds, ring wells and tube wells. The underground water reserve of the town is in a satisfactory condition hence it is felt that there will not be shortage of water for distribution in the town. Besides this, Diyung river is passes near the town from which water can be trapped for distribution if required in future for the projected population.



Lumding Water Supply scheme at Harlongper River

6.1.4 POLICE STATIONS :

Lumding Master plan Area is controlled by Lumding police station which is located in the heart of the Lumding town.

6.2 TRADE AND COMMERCE:

In case of commercial activities Lumding Town has been growing like other towns of Lumding District. As per data available from the Lumding Municipal Board the total No. of retail shops in the Town Area is 620 units and 44No. of wholesale units.

Table:- 22: Data regarding Trade and Commerce within Lumding Municipal Area :

Sl. No.	Type of business Units	Nos. of business Units	
		Wholesale	Retail sale
1	Grocery	6	246
2	Cloth	-	68
3	Medicine	31	22
4	Cycle shop	-	6
5	Hardware(cement dealer)	3	37
6	Electrical shop	2	53
7	Radio & T.V	-	23
8	Fruit shops	-	8
9	Jeweler	-	48
10	Hardware	-	48
11	Rice	2	2
12	Motor tyre dealer	-	2
13	Fertilizer	-	14
14	Optical shop	-	6
15	Timbers	-	5
16	Book stall	-	4
17	Scooter & Motor cycle dealer	-	5
18	Restaurant	-	16
19	Sweet Shop	-	07

Source : Lumding Municipality Board

There is a daily markets within Lumding Planning Area. Following table depicts the markets within Lumding Master Plan Area.

Table-23:

Sl. No.	Markets within Lumding Mater Plan Area	Name of market
1	Lumding Town Area	1. Lumding Crossing Gate Market.
2	Village Area	-
3	Weekly market	-

Source: T&CP, Nagaon Survey and Lumding Municipality Board



Lumding Market Area

6.2.1 CREMATION /BURIAL GROUND :

In Lumding MB Area total 02 Nos. of cremation grounds and only 02 (two) Nos. of burial ground as shown in the table-24 below :

Sl. No.	Location / Ward No.	Number of Cremation Ground	Number of Burial Ground
1	Ward No. 1	-	-
2	Ward No. 2	-	-
3	Ward No. 3	1	1
4	Ward No. 4	1	-
5	Ward No. 5	-	1
6	Ward No. 6	-	-
7	Ward No. 7	-	-
8	Ward No. 8	-	-
9	Ward No. 9	-	-
10	Ward No. 10	-	-
11	Ward No. 11	-	-
12	Ward No. 12	-	-
13	Ward No. 13	-	-

Source : Lumding Municipal Board

The existing cremation and burial grounds should be developed with the basic facilities like roads, waiting shed, water supply, electricity and drainage etc.

6.2.3 POST OFFICE :

It is seen that there is 1(One) post office within Lumding Municipal Board Area and one is outside of Lumding M.B area which are not sufficient to meet the need of the demand of the peoples.



Lumding Post Office

6.2.4 FIRE STATION :

The entire Master Plan area of Lumding is covered by one Fire Station and it is situated in Lumding town area.

6.2.5 BANKS / FINANCIAL INSTITUTIONS :

Lumding Planning area is served by 9 (Nine) nos. of Banks and the banks located within the planning area are shown in the table below :

Table:- 25 Banks in Lumding Municipal Area :

Sl. No.	Name of Banks	No. of banks
1	PUNJAB NATIONAL BANK	1
2	STATE BANK OF INDIA	1
3	ALLAHABAD BANK	1
4	CANARA BANK	1
5	ICICI BANK	1
6	BANDHAN BANK	1
7	ASSAM GRAMIN BIKASH	1
8	AXIS BANK	1
9	NORTH EAST SMALL BANK	1

Source: Lumding Municipality Board

**S.B.I, Lumding****6.3 RECREATIONAL FACILITIES :**

Recreational facilities play an important role in providing venues for physical activity in urban areas. The facilities are incredibly important for a healthy, vibrant community, and for citizens reaping the benefits of having a health community. Following table depicts the available of recreational facilities in the Lumding Municipal Area as well as the Planning Area.

Table:- 26: Recreational facilities within Lumding Master Plan Area:

Sl. No.	Recreational facilities	Nos. along with Name and Location
1	Parks	-
2	Playground	(a) Swahid Field. (b) National H S School Field.
3	Library	Azad Hind Library
4	Cremation Ground	Lumding Road Tiniali

Source : Lumding Municipality Board

**Only Library at Lumding Town-Azad Hind Library**

6.3.1 DRAINAGE SYSTEM:

The existing drainage facilities are not sufficient in Lumding town Area. Most of the new residential areas have grown without having drainage facilities. As per data received from the Lumding Municipal Board, the total drain length of Lumding M.B. Area is 34.584 Km. and out of the total length, 18.314 Km. is R.C.C and 16.27 Km. is Kacha drain. Below table shows the length of drains.

Table-27: Drain Length of Lumding Town Area

Sl. No.	Toal drain lenght	Length in Km.	
		R.C.C.	Kachha
1	34.584 km.	18.314	16.27

Source: Lumding M.B

6.3.2 SEWERAGE SYSTEM:

At present there is no sewerage system in Lumding town as well as in the planning area. The mode of disposal is through the septic tanks with soak pits arrangement. Most of the families day to day washables dirty water and the bathroom water is disposes in own soak pits. Some of the families washable water discharge is into the open municipal drains. Almost all the holdings in the town have individual septic tank. There are no dry latrines.

6.4 SOLID-WASTE MANAGEMENT:

The management of municipal solid waste is one of the main functions of all Urban Local Bodies (ULBs) in the country. All ULBs are required to meticulously plan, implement and monitor all systems of urban service delivery especially that of municipal solid waste. With limited financial resources, technical capacities and land availability, urban local bodies are constantly striving to meet this challenge.

As per data received from Lumding Municipality Board total waste generated per day in Lumding town is approximately 2 metric tons and collects about 1 tons (50%) from various source like households, commercial establishments , hotel, marketplace, drain cleaning and street sweeping, construction waste etc. Presently, following table depicts the nos. of vehicles and other equipments used for solid waste management system by the Lumding Municipality Board.

Table-28: Vehicles and other equipments used for solid waste management system.

Sl. No.	ITEM	NUMBER
1	Tempo van	1
2	Tripper	3
3	Mini JCB	1
4	Water tank	1
5	JCB (Big)	1
6	Safai Kormosari	31

Source: Lumding M. B

CHAPTER-7

ENVIRONMENT AND CITY BEUTIFICATION PLAN

7.1 Description of eco-friendly areas like water bodies; beels; forests; and also heritage areas.

Eco-Friendly areas

Eco is an abbreviation for ecology, the system of relationships between living things, and with their environment. Friendly implies beneficial, or at least not harmful. It should follow that the term eco-friendly, when added to services or products, indicates **positive, or at least not harmful, effects on living things.**

Thus, Eco-friendly literally means earth-friendly or not harmful to the environment. This term most commonly refers to products that contribute to green living or practices that help conserve resources like water and energy. Eco-friendly products also prevent contributions to air, water and land pollution.

Process for making a town eco-friendly were-

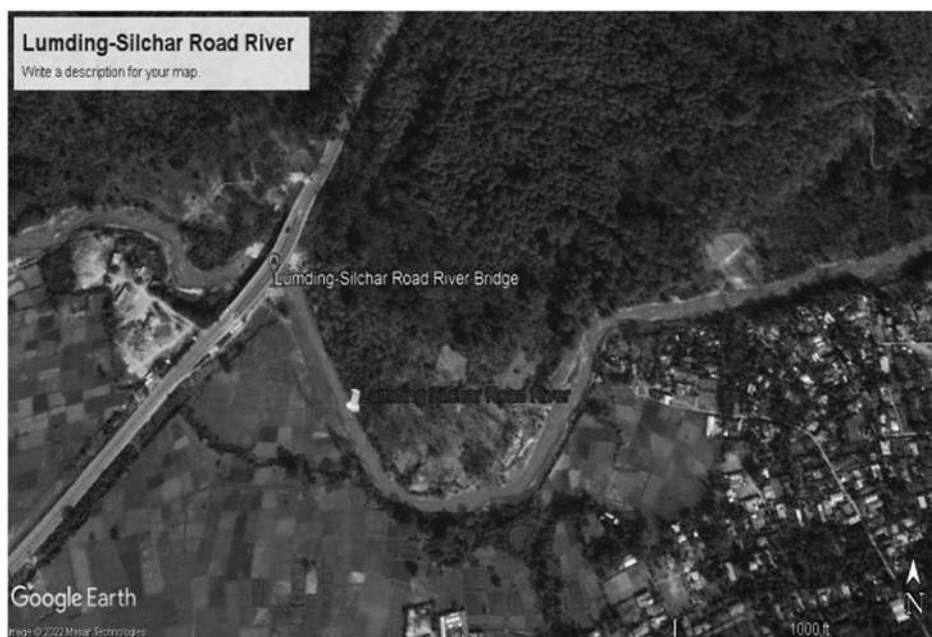
- COMMUNITY GARDEN,
- GREEN YOUR BUILDING,
- SMART ENERGY POLICIES,
- ENCOURAGE BICYCLING AMONG CITIZENS
- REDUCE, REUSE AND RECYCLE,
- URBAN FORESTRY, EFFICIENT PUBLIC TRANSPORT, QUALITY PUBLIC SPACES etc.

7.2 Rivers and Wetlands of Lumding Master Plan Area

Topography of Lumding is a mixture of town, village and city. On the path to Upper Assam, Lumding enjoys a hilly, subterranean landscape with dense reserve forests bounding it from all sides. Lumding area ranges from the very low rolling hills approaching the alluvial flats of the Baralangfer and the Dhansiri peneplain to the north and north-east respectively, to the fairly high precipitous hills of the Naga Ranges on the southeast. As far as observed there does not appear to be any structural control over the topography. Drainage is secured for the most part by an irregular network of incised streams which have kept their pre-uplift courses. In the west and northwest sections of the region, the gently rolling hills suggest plateau topography with incised streams. On the west the Lumding area is drained by the Doyang River, on the east and the Baralangfer Rivers, and in the center by the Lumding River.

7.2.1 Lumding River :- Lumding River is the only River flows through the Lumding Master Plan Area and a good example of the larger stream types within the region. Starting in the higher hills along the eastern border of the area, it has rapidly cut its way to a stage approaching base level, and for the latter half of its total length pursues very meandering courses. One phase of its life history well illustrated is in the system of river terrace, forested that are frequently seen at various elevation above the present stream banks, indicating a past period of revived energy that has again lost much of its inceptional power.

As the Lumding region lies in rain-shadow region because of its unique geographical location surrounded by hills from hills from all sides. Therefore, the Rainfall is very less throughout the year. However, the region sports small rivers, streams, rivulets through its hilly terrain and are beautiful to watch during the rainy seasons which dry up during winter. These rivers form a major part for the agricultural practices in Lumding and nearby villages to it.



Lumding River

7.3 Historical Place at Local Level:-

7.3.1 Harulongpher Shitala Bari:- Goddess Shitala came in the dream of one of the founder who was suffering from Small Pox and desired to be worshipped at Lumding, next morning he explained his dream among his close friends and all decided to start Shitala Puja in Lumding. It was 1958, the first shitala Maa worship took place in an open ground now a Primary School function from that site. With own contribution and subscription from the community the puja was solemnised without much fanfare but with religious fervor.

Shitala Maa is worshiped by many, she is an incarnation of Supreme Goddess Durga, she cures poxes, sores, ghouls, pustules and diseases. Lumding Sitlabari is a famous temple known to all, in and around Lumding town. During March end to starting April, there is an 8 days festival celebrated by many people. During the eight days a fair is organized wherein every household goods are sold and good food court, restaurant and chat house with especial Bengali dishes are available. Thousands of devotees across the region who have faith join this puja. There were many miracles experienced by the devotees.



Herlongpher Shitalabari Mandir

7.3.2 Lumding Kalibari Mandir :- Kalibari Mandir is at the centre of the Lumding town is famous and old Kali Temple. It can be described as the cultural centre of the people of the town. Durga Puja of Kalibari is always the best. People of every age used to make a visit to the temple wearing new clothes during Puja. Dhak/ Dhol during evening prayer are very special to the devotees. Lightning of Candles during the time of Dewali and Kali Puja at the temple premises is awesome.



Lumding Kalibari Mandir

PROPOSED STRATEGIES

Heritage sites Management and organizational structure

There is a need to setup a Heritage Committee for Lumding Planning Area. The concerned Development authorities/municipalities as well as local stakeholders, NGOs have significant role to play in successful implementation of strategies proposed for Lumding Areas. Formulations of special regulations to control or mediate development within the available heritage areas are a prerequisite for effective implementation of the proposed recommendations. Special regulations for all development within heritage areas, including new construction, demolition or modification to existing buildings around historic structures or within historic precincts must be formulated by the concerned authority with the advice of Heritage Committee. Detailed plans must be prepared by respective Municipalities. It is necessary to prepare an inventory of build, cultural and natural heritage resources of the special areas. The inventory must include both protected and unprotected resources. The cost for most of the new developments in special heritage areas is already covered in budget allocation for "Tourism, Recreation and Culture" and hence not included in this table. Estimates for projects those are specific for preservation of heritage resources are only included. River Front Development is treated as a separate item of budgetary allocation.

The relevant policy guidelines and management of culture and natural heritage can rejuvenate and revitalize the Lumding region and support the existing cultural identity. It can also promote tourism, boost local economy and contribute a great sense of pride amongst the residents and become a touchstone for future development.

Strategies for Development of Recreational Areas

Recreation is any physical or psychological revitalization through the voluntary pursuit of leisure time. It is an activity which is relaxing to people and provides diversions from their normal routine. Generally there are four types of Recreational activities:

Revitalization: Restoration and enhancement of mental and physical health.

- Play :- relaxation and exercise
- Adventure :- Excitement and challenge
- Education :- organized and incidental
- Indoor Facilities consist of library, clubs, cinema hall, auditorium, multiplex, art and craft centre, shopping mall, food courts, cyber, gymnasium etc.
- Outdoor recreation facilities consist of gardens, parks, play ground, golf courses, zoo, and botanical garden, race course, stadium, exhibition ground, water sports complex, green ways etc.

Proposal for augmentation and development of Recreational Facilities

- Development of green belts, plantation, parks, ghats, plazas, Beautification of Ponds abreast the urban set up and invite nature harsh environment through myriad ways.
- Amusement parks to be developed along with horticulture, pisi culture, herbal arks, etc.
- Development of eco-tourism with provision of water theme parks, weekend resorts, clubs, etc at planning area level.

Proposed strategies to boost tourism

As a service industry, tourism has numerous tangibla and intangible elements. Major tangible elements include transportation, accommodation, and other components of a hospitality industry. Most intangible elements relate to the purpose or motivation for becoming a tourist, such as rest, relaxation, the opportunity to meet new people and experience other cultures, or simply to do something different or have an adventure. Tourism is vital for every place, due to the income generated by the consumption of goods and services by tourist, the taxes levied on business in the tourism industry, and the opportunity for employment and economic advancement by working in the industry. For these reasons government and private agencies sometimes promote a specific region as tourist destination, and support the development of advancement by working in the industry. For these reasons government and some private agencies sometimes promote a specific region as tourist destination, and support the development of a tourism industry in that area. The contemporary phenomenon of mass tourism may result in overdevelopment; however alternative forms of tourism such as ecotourism seek to avoid such outcomes by pursuing tourism in a sustainable way.

Although there is no any important Tourist Place within Lumding Master Plan Area, however there were some tourist places which attract tourist at local and Regional Level which is located at a few Km from the Lumding Town. **Among them were, Marat longri wildlife sanctuaries (22.7 Km.), Haflong as Hill Station (166 Km.), Panimur Waterfall, (73.2 Km.), Nambor Wildlife Sanctuary (133.3 Km.).**

Lumding is the only town nearest to this beautiful tourist places therefore the importance of the town is significant. For accommodation and night stay after sightseeing this tourist places, Lumding is perhaps the best choice and therefore Lumding have the potential to growth as hospitality industry in future. Therefore, Resorts, Guest House, Hotel restaurant etc to be construct with all luxurious facilities to attract tourist for boast up tourist industry. Moreover, there are also beautiful local picnic spot on the hilly tracts and on the bank of the river Lumding.

Resorts are specially designed hotels that are meant to house and entertain tourists from out of state. The hallmark of any good resort is that it will be full of all the required amenities for a pleasant living experience, while also having dozens of beautiful and entertaining venues to give the guests a fun and memorable experience. Resorts are often located at popular tourist destinations like hill stations or holiday islands. The biggest

advantage of a resort is that it provides guests with a safe and clean living space during their vacation.

Tourists are often oblivious of the culture and geography of holiday destinations, which makes them extremely vulnerable to scams and getting lost in unsafe areas. By staying in a resort, a visiting tourist is able to enjoy all the beauties of a holiday destination without having to worry about the dangers that come with being a stranger in a new location. People who are looking for 'the best resorts near me' are making the right decision for the upcoming holiday.

Safety is a top priority for all reputable resorts. The best resorts have top of the line security equipment which allows the management to quickly stop anything that is dangerous to the safety and health of guests. Guests can trust the management to protect their personal belongings while they are outside. Peace of mind is one of the main reasons why thousands of tourists flock to resorts every year.

Resorts at Lumding, Haflong also provide guests with the best local food available. Guests can enjoy delicious local cuisines without having to worry about the health and the quality of the food. Reputable resorts hire the best chefs possible, ensuring that every meal is delicious and memorable for the guests. Moreover, resorts also have a massive staff that cleans the guests' rooms for them, basically allowing the guests to freely roam around the holiday location without having to worry about chores.

Finally, resorts provide several fun activities and location appropriate gathering spots that keep guests entertained for the entire duration of their stay. Someone who stays at a resort will seldom have to go outside the resort property to find enjoyment. This means that resort guests can enjoy the beauty of a location without having to compromise on their safety by going into unknown areas. Guests will only have to leave a resort if they want to go to a specific monument or famous cultural location.

There are multiple types of resorts that one can go to, depending on the geographic location of the tourist destination. Lumding resorts all have unique themes that differentiate them from other resorts of the same type. Some of the most famous types of resorts are hill station resorts, beach resorts, river resorts, island resorts, and luxury resorts.

Hill stations are resorts that are located on top of a tall hill. These resorts are popular thanks to their scenic beauty, cool climate, and isolated location. Unpolluted natural wonders are common sights in and around hill stations, as these locations tend to be free of industrialization and massive populations.

Luxury resorts are not distinguished by any specific geographical location, instead, these resorts are known for their affluent and high-class quality of life. These resorts tend to be expensive and reserved for the wealthy, who want their vacation to be as luxurious as possible.

Economy resorts, on the other hand, are based on the principle of affordability and self-service. These resorts have all the amenities required to have a comfortable stay but do not provide high-class customer service or food. Economy resorts are meant for those who want to enjoy a safe vacation while still staying within a budget.



Morat Longri Wildlife Sanctuary Panimur Water Fall at Dima Hasau District famous for Wild Asiatic Elephant

7.4 City Beautification Plan/Proposals

Roadside plantation

Roadside plantation acts as a buffer between the people and government- owned forests, and it will help to reduce the extensive indiscriminate destruction of forests. Roadside tree planting can make significant improvements to the quality of roads and the environment and can protect key natural resources, especially in ASAL regions where vegetation is essential in binding the soil with organic matter that aids in enhanced infiltration and water retention in the soil.

Planting trees along the road sides, highways and pathway is known as avenue plantation. Avenue plantation is generally practiced for the aesthetic value, Beautification, shade purpose, control of soil erosion and for its economic use of timber, flowers & fruits. Best trees for roadside plantation are Neem, Krishna Chura, Radha Chura, Sonaru etc. Trees also give us fresh air as they produce oxygen. Trees are planted along the roadside as they provide shade to the travelers during summers.

Below table shows the Proposal of Roadside tree Plantation alongside the major Road of Lumding Town Area.

Table:-

Sl. No.	Name of the Road	Length (approx.)
1	Eta Bhatta Charilali to Tini-Ali	2.01 km. (Both side)
2	Tini- Ali to Diphu Bridge Road	0.750 km. (Both side)

Source:- Lumding Municipal Board

Requirements and strategies:-

- (a) One Kind of Flowering Trees on Both Sides
- (b) Two Kinds of Flowering Trees Blooming at one Time on both Sides of Road
- (c) 3. Two Kinds of Flowering Trees Blooming at Different Time on both Sides of the Roads.
- (d) 4. Shady Trees Only on both Sides of Roads.
- (e) The trees should be planted at least 12 m apart from the centre of the carriageway.
- (f) If the road is constructed on the embankment, the trees should be planted as possible as high on the sides of the embankment.

Urban agriculture, urban farming, or urban gardening is the practice of cultivating, processing, and distributing food in or around areas. Urban agriculture is also the term used for animal husbandry, aquaculture, urban beekeeping, and horticulture. These activities occur in peri-urban areas as well. Peri-urban agriculture may have different characteristics.

Urban agriculture can reflect varying levels of economic and social development. It may be a social movement for sustainable communities, where organic growers, "foodies", and "locavores" form social networks founded on a shared ethos of nature and community holism. These networks can evolve when receiving formal institutional support, becoming integrated into local town planning as a "transition town" movement for sustainable urban development. For others, food security, nutrition, and income generation are key motivations for the practice. In both scenarios, more direct access to fresh vegetables, fruits, and meat products through urban agriculture can improve food security and food safety.

Types of Urban Farming

- (a) Backyard Gardens. This is the growing of food on home property. ...
- (b) Tactical Gardens. This involves using the limited space available to practice agriculture without having to incur hefty expenses.
- (c) Street landscaping.
- (d) Forest gardening.

- (e) Greenhouses.
- (f) Rooftop gardens.
- (g) Green walls
- (h) Vertical farms.

Strategies

- (a) Allotment gardens: An allotment garden is a plot or parcel of urban or suburban land made available for individual, non-commercial gardening or food growing and recreation.
- (b) Community gardens: Community gardens are an emerging form of urban farming.
- (c) **Inventory of your town land (and rooftops)**
- (d) **Partnerships and Cultivate market access**

Urban forestry is the care and management of single trees and tree populations in urban settings for the purpose of improving the urban environment. Urban forestry involves both planning and management, including the programming of care and maintenance operations of the urban forest. Urban forestry advocates the role of trees as a critical part of the urban infrastructure. Urban foresters plant and maintain trees, support appropriate tree and forest preservation, conduct research and promote the many benefits trees provide. Urban forestry is practiced by municipal and commercial arborists, municipal and utility foresters, environmental policymakers, city planners, consultants, educators, researchers and community activists. The urban forestry comprises all green elements under urban influence such as, Street trees and road plantations, Public green areas, such as parks, gardens, cemeteries, Semi-private space, such as green space in residential areas and in industrial or specially designated parks.

Strategies

- (a) Increase tree planting in neighbor hoods with low urban forest cover.
- (b) Increase Street and park tree diversity.
- (c) Plant trees to support green infrastructure and reduce climate change
- (d) Enhance biodiversity through tree planting.
- (e) Update inventory and data management for public trees.
- (f) Manage public trees for public safety and support tree health.
- (g) Work together with local people and the urban NGO related to forestry.
- (h) Raise awareness of the importance of the urban forest.
- (i) Support volunteers, NGOs, schools, and neighborhood groups in urban forest stewardship.

7.5 Public Rain Water Harvesting Scheme

Rainwater harvesting (RWH) is the collection and storage of rain, rather than allowing it to run off. Rainwater is collected from a roof-like surface and redirected to a tank, cistern, deep pit (well, shaft, or borehole), aquifer, or a reservoir with percolation, so that it seeps down and restores the ground water.

Harvesting rainwater allows the collection of large amounts of water and mitigates the effects of drought. Most rooftops provide the necessary platform for collecting water. Rainwater is mostly free from harmful chemicals, which makes it suitable for irrigation purposes. There are two ways of harvesting rainwater, namely; surface runoff harvesting and rooftop rainwater harvesting.

There are two major techniques of rainwater harvesting.

1. **Surface runoff harvesting:-**In this method, rainwater flows away as surface runoff and can be stored for future use. Surface water can be stored by diverting the flow of small creeks and streams into reservoirs on the surface or underground. It can provide water for farming, for cattle and also for general domestic use. Surface runoff harvesting is most suitable in urban areas.

Rooftop rainwater/storm runoff can be harvested in urban areas through:

- Recharge Pit
- Recharge Trench
- Tube well
- Recharge Well

2. **Groundwater recharge**

Groundwater recharge is a hydrologic process where water moves downward from surface water to groundwater. Recharge is the primary method through which water enters an aquifer. The aquifer also serves as a distribution system. The surplus rainwater can then be used to recharge groundwater aquifer through artificial recharge techniques.

Rainwater in rural areas can be harvested through:

- Gully Plug
- Contour Bund
- Dugwell Recharge
- Percolation Tank
- Check Dam/Cement Plug/Nala Bund
- Recharge Shaft

Although rainwater harvesting measure is deemed to be a desirable concept since the last few years, it is rarely being implemented in rural India. Different regions of the country practiced a variety of rainwater harvesting and artificial recharge methods. Some ancient rainwater harvesting methods which includes Madakas, Ahar Pynes, Surangas, Taankas, etc.

Water Harvesting Schemes in india

Steps taken by the Central Government to control water depletion and promote rain water harvesting / conservation are as under:

1. Government of India launched Jal Shakti Abhiyan (JSA) in 2019, a time bound campaign with a mission mode approach intended to improve water availability including ground water conditions in the water stressed blocks in India. Ministry of Jal Shakti visited water stressed districts and to work in close collaboration with district level officials to undertake suitable interventions. In addition, 'Jal Shakti Abhiyan – Catch the Rain' campaign has been launched by Hon'ble Prime Minister of India on 22 March 2021.

2. National Water Policy (2012) has been formulated by Department of Water Resources, RD &GR, inter-alia advocates rainwater harvesting and conservation of water and highlights the need for augmenting the availability of water through direct use of rainfall. It also inter-alia, advocates conservation of river, river bodies and infrastructure should be undertaken in a scientifically planned manner through community participation. Further, encroachment and diversion of water bodies and drainage channels must not be allowed and wherever, it has taken place, it should be restored to the extent feasible and maintained properly.

3. In compliance to the decision taken by the Committee of Secretaries, an 'Inter Ministerial Committee' under the Chairmanship of Secretary (WR, RD & GR) has been constituted to take forward the subject of 'Push on Water Conservation Related Activities for Optimum Utilization of Monsoon Rainfall'.

4. Ministry has circulated a Model Bill to all the States/UTs to enable them to enact suitable ground water legislation for regulation of its development, which also includes provision of rain water harvesting.

5. Master Plan for Artificial Recharge to Groundwater- 2020 has been prepared by CGWB in consultation with States/UTs which is a macro level plan indicating various structures for the different terrain conditions of the country including estimated cost. The Master Plan envisages construction of about 1.42 crore Rain water harvesting and artificial recharge structures in the Country to harness 185 Billion Cubic Metre (BCM) of monsoon rainfall.

6. CGWB has taken up Aquifer Mapping and Management Programme during XII Plan, under the scheme of Ground Water Management and Regulation. The Aquifer Mapping is aimed to delineate aquifer disposition and their characterization for preparation of aquifer/area specific ground water management plans with community participation. The management plans are shared with the respective State governments for taking appropriate measures / implementation.

7. Best practices of water conservation by various entities including private persons, NGOs, PSUs etc have been compiled and put on the web site of the Ministry for the benefit of general public. An interactive link on best practices has also been created for receiving inputs from public, which, after necessary evaluation/validation are put on the website for the benefit of the public.

8. Department of Water Resources, RD& GR has instituted National Water awards to incentivize good practices in water conservation and ground water recharge.

9. Mass awareness programmes (Trainings, Seminars, Workshops, Exhibitions, Trade Fares and Painting Competitions etc.) are conducted from time to time each year under the information, Education & Communication (IEC) Scheme of DoWR, RD & GR in various parts of the Country to promote rain water harvesting and artificial recharge to ground water.

10. The Ministry of Rural Development in consultation and agreement with the Department of Water Resources, RD & GR and the Ministry of Agriculture & Farmers' Welfare has developed an actionable framework for Natural Resources Management (NRM), titled 'Mission Water Conservation' to ensure gainful utilization of funds. The Framework strives to ensure synergies in Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), erstwhile integrated Watershed Management Programme (IWMP) now PMKSY Watershed Development Component and Command Area Development & Water Management (CADWM), given their common objectives. Types of common works undertaken under these programmes/schemes are water conservation and management, water harvesting, soil and moisture conservation, groundwater recharge, flood protection, land development, Command Area Development & Watershed Management.

11. Central Government supports construction of water harvesting and conservation works primarily through Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and Pradhan Mantri Krishi Sinchayee Yojana– Watershed Development Component (PMKSY-WDC).

12. Atal Bhujal Yojana (ABHY), a Rs.6000 crore scheme with World Bank funding, for sustainable management of ground water with community participation is being taken up in the identified over-exploited and water stressed areas fall in the States of Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh. This scheme is expected to contribute significantly towards water and food security of the participating states.

Strategies at Local Level

At local level, Urban Local Body/Municipal Board in compliance with Rain water Harvesting should strictly follow the Government Guidelines, Circulars, Manual, model circulated time to time. In different Structural construction, Planning, Drawing, there should be the provision of Rain water harvesting system. In this regards, authority related to the permission of construction of Houses, Building, Structure should follow the rules, Byelaws of Building rules. Regarding rain water harvesting in the Lumding Planning Area, Lumding Municipal Board should strictly follow the Building Rules-2014 Govt. of Assam in issuing Building construction permission and also to create Public awareness among people of the locality in rain water harvesting techniques.

7.6 Development of parks and recreational spaces with Identification and demarcation of Open Space for sports, Cultural function, fairs etc in Lumding Planning Area:-

Due to rapid growth of population, the present recreational facilities are not sufficient to fulfill the needs of the people of the Lumding Town. In Lumding Town there is no any organized park for the Children as well senior citizens.

Proposal for Construction of Playground Infrastructure and Parks & other recreational Facilities in Lumding Planning Area:-

Sl. No.	Name of the Open space/ site	Proposal
1	Hati Khuli Area	Parks, Auditorium, Development of Play Ground Infrastructures.
2	Suitable Plot of Land within Lumding Municipal Board.	Construction of Open theater with all modern facilities.
3	Suitable Plot of land Within Municipal Area.	Proposal of construction of 4 Nos. of Modern Parks within the Lumding Municipal Board.
4	Suitable Plot of land	Proposal for construction of 1 Children Parks and 1 Community centre at each Revenue village of the Lumding Planning Area.
5	Suitable plot of land on the Bank of River Lumding.	Proposal for River Front Development Project and construction of eco-tourism Parks at River Lumding.
6	Suitable Plot of Land with LMB Area	Proposal for construction of Guest House
7	Kalibari point, Fruit market chariali, Crossing Gate at Harlongpher point.	Proposal for construction of Automatic traffic signal .
8	Highway to Lumding Point.	Proposal for construction of Entrance Gate

Source:- Lumding Municipal Board

*CHAPTER: 8***LAND USE PLAN:**

8.1 EXISTING LAND USE OF LUMDING MASTER PLAN AREA -2021:

Land use gives an accurate picture of an urban area which is having great significance for future planning. The main purpose of land use classification is to provide framework for the development of a particular area. The need for studying the land use aspect is elaborated as follows: To know the arrangement of various parts of town put to different uses such as residential, commercial, industrial etc.

The study of land use holds a very significant place where a particular settlement can be recognized as a town depends on its functional structure. The functional activity can be regarded as the main regions for the growth of urban centre. The main purpose of land use study is to provide framework for the development of a particular area. It gives us an idea about the proportion of various types of land.

The Existing Land Use pattern of Lumding Master Plan Area was updated based on ground reality on the scientific base map prepared with the help of Satellite Image and Revenue records like village level cadastral sheets, Field Measurement Book sheets and Town Survey Sheets. The Lumding Planning Area is administratively divided into two entities, Urban and Rural. Urban area comprises of Lumding Municipal Board area of **7.77 Sq.Km.** and Rural area of **12.23 Sq.Km.** including 17 Nos. of villages. This chapter presents the existing land use analysis, 2021 for the planning area.

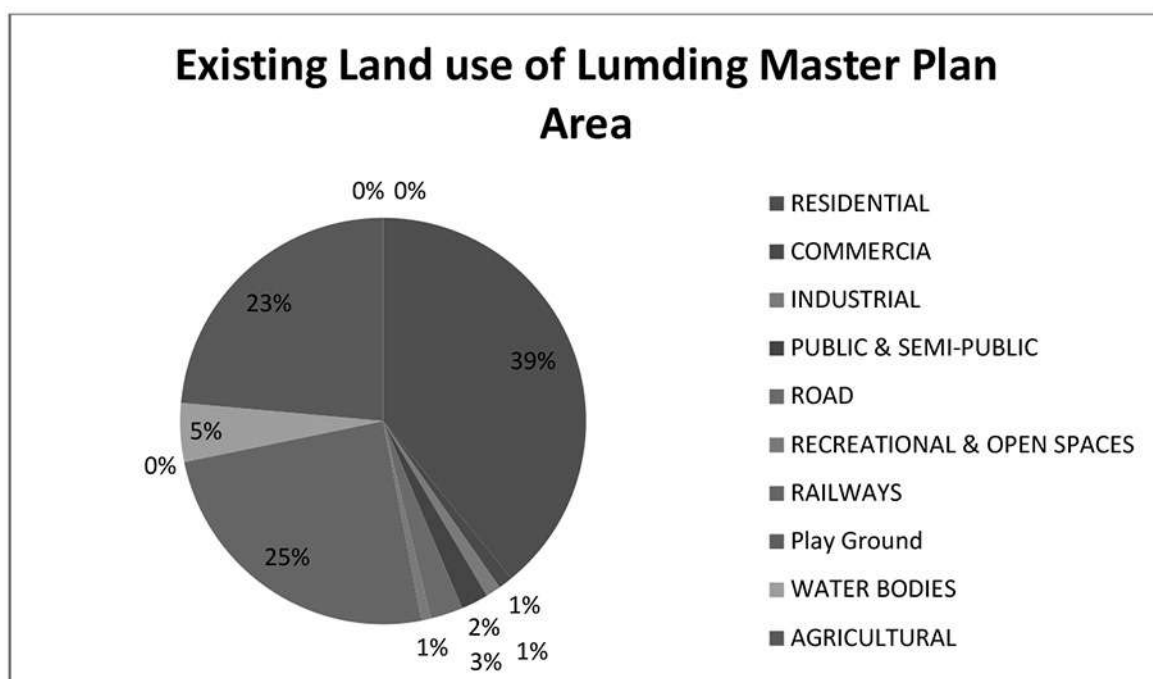
As a part of the preparation of GIS Based Master Plan- 2045, the study of the existing Land use pattern of Lumding Master plan area was carried out by a survey conducted by T&CP, District Office, Nagaon in order to formulate future policies so that a balanced approach can be made in allocating the future land uses. The existing landuse in Lumding Master plan area has been grouped into the following 11 (Eleven) categories.

Table : Existing Land use of Lumding Master Plan Area

Sl. No.	LAND-USE CATEGORY	AREA (IN SQ. KM.)	% OF DEVELOPED AREA	% OF TOTAL PLANNING AREA
1	RESIDENTIAL	7.82	54.45	39.1
2	COMMERCIAL	0.23	1.60	1.15
3	INDUSTRIAL	0.24	1.67	1.2
4	PUBLIC & SEMI-PUBLIC	0.43	2.99	2.15
5	ROAD	0.52	3.62	2.6
6	RECREATIONAL & OPEN SPACES	0.15	1.04	0.75
7	RAILWAYS	4.95	34.47	24.75
8	PLAY GROUND	0.01	0.07	0.05
9	SOLID WASTE MANAGMENT SITE	0.01	0.07	0.05
	TOTAL DEVELOPED AREA	14.36		-
10	WATER BODIES	0.93	16.49	4.65
11	AGRICULTURAL	4.71	83.51	23.55
	TOTAL UNDEVELOPED AREA	5.64	-	-
	TOTAL AREA	20.00		100

The detailed land use analysis of the Lumding Master Plan Area-2021, gives the picture of the shape of the Urban and Rural land for various activities. From the above table it is seen that out of the total developed land, Residential use occupied 7.82 sq. (39.1%), 0.23 Sq.km. (1.15%) occupied commercial use, 0.24 Sq.km. (1.2 %) occupied by industrial use, 0.43 Sq.km. (2.15 %) occupied for public and semi public use which includes various Physical and social infrastructure like Educational institutes, Government Offices, Hospitals, Govt. Residential Buildings etc., 0.52 Sq.km (2.6 %) of land occupied by roads, 0.15 sq.km. (0.75%) of land occupied by recreation facilities, 4.95 sq.km (24.75 %) of land already occupied by railways and 0.01 Sq.km. (0.05 %) of land occupied by play ground.

Out of the undeveloped land, Agriculture land use being the predominant land use which occupies 4.71 Sq.km.(23.55%) of the total planning area, about 0.93 Sq.km. (4.65 %) occupies by water bodies.



From the table it is also observed that there is a huge scope of future development of the planning area. The rural area has concentration of good amount of Agricultural land, open space and water bodies and urban area also has large amount of vacant land and open spaces.

Thus the Planning area has a good scope of development of existing residential buildings and construction of new residential buildings or redevelopment in conformity with the heritage importance and special regulations for the Planning Period up to 2045.

CHAPTER : 9**PROPOSED LAND USE PLAN :**

By using the planning policies, techniques, principles and projections, follow up of the URDPFI Guidelines, various recommendations and proposals for the future growth of Lumding Master Plan Area have been formulated. As such recommendation and proposals have been translated into land use plan to give them spatial dimension. The land use shown in the map indicates the functional relationship between various urban activities visualized up to 2045 and aims at to provide the most economics use of urban land.

The land requirement for various urban and rural activities has also been proposed on the basis of projected population of 82574 by 2045. The distribution of land into various broad categories of land use has been made keeping in view the minimum desirable standards of development and functional linkages between them. The following table shows the land proposed for various major uses.

Table: Proposed Land Use classifications for different uses of Lumding Master Plan, 2045

Sl. No.	Land use Category	Existing Area (in Sq.km.)	Area (in Sq.km.)	% of Total Planning Area
1	Residential	7.82	8.44	42.2
2	Commercial	0.23	0.42	2.1
3	Industrial	0.24	0.29	1.45
4	Public & Semi-Public	0.43	0.44	2.2
5	Road	0.52	0.52	2.6
6	Recreational & Open Spaces	0.15	0.16	0.8
7	Railways	4.95	4.95	24.75
8	Playground	0.01	0.01	0.05
9	SOLID WASTE MANAGMENT SITE	0.01	0.01	0.05
10	BUS & TRUCK TERMINUS	-	0.03	0.15
11	Agricultural	4.71	3.81	19.05
12	Water Bodies	0.93	0.93	4.65
	Total area	20.00	20.00	100.00

9.1 PROPOSED RESIDENTIAL USE :

To accommodate the projected population of 82574 an area of about **0.62** Sq.km are proposed for residential use in Lumding Master Plan Area. The plan provides the following pattern of residential density.

9.1.1 HIGH DENSITY ZONE:

Lumding Municipal area has been proposed as high density residential zone with a population of 75 to 100 persons per acre.

9.1.2 MEDIUM DENSITY ZONE:

Within the residential areas of the villages just adjacent to the Municipal boundary have been proposed as Medium Density residential zone with a population of 50 to 75 persons per acre.

9.1.3 LOW DENSITY ZONE :

The residential areas of the other villages have been proposed as low density residential zone with a population of 20 to 50 persons per acre.

9.2 PROPOSED COMMERCIAL LAND USE :

Due to rapid population growth in Lumding, the existing commercial area concentrated in and around the surrounding the town area will not be sufficient to meet the need of future projected population.

Therefore, an additional area of about **0.18** Sq.km. is proposed for commercial purposes in the Lumding Master Plan area.

9.3 PROPOSED INDUSTRIAL LAND USE:

There are good prospects for setting up of forest and agricultural based small and medium industries in Lumding Master Plan area. There are also good scopes for setting up of service and light consumer goods producing industries like agriculture implements, readymade garments, soap making, brick making, bakery, plastic goods, power loom etc. In addition to the existing industrial area, an area of about **0.04** Sq.km of land has been earmarked for setting up of medium and light industries in the Lumding Master Plan Area.

9.4 PROPOSED PUBLIC AND SEMI-PUBLIC USE:

Within Lumding Master Plan area land proposed for public and semi-public use is **0.21** Sq.km. of the total developed area. The public and semi-public uses have been proposed on Govt. land available in the Planning Area.

9.5 PROPOSED CIRCULATION PLAN :

New road proposed under transportation will be **0.01** Sq.km. for Lumding Master Plan -2045. The proposals for improvement and widening of roads within Lumding Master Plan area of different places are mentioned in the table. All the major junction points should be developed in a planned manner. Modern traffic signaling system is to be improved within the Lumding Master Plan Area.

9.6 HIERARCHY OF ROAD PROPOSED WITH WIDTH:

- 1) Primary road - 75" width
- 2) Secondary road - 50" width
- 3) Tertiary road -20" width

9.7 PROPOSED FOR RECREATIONAL FACILITIES:

A quite no. of parks and playgrounds are not available within the Lumding Master Plan area to meet the demand of the people and the condition of the existing parks and playgrounds are deplorable condition which are urgently need to be improved. Thus an area of **0.01** Sq.km. has been proposed for Recreational facilities like's parks and playgrounds in the Lumding Master Plan Area.

9.9 INFRASTRUCTURE PROPOSALS:

The existing social and physical infrastructure facilities and their services of Lumding Master Plan area have been studied and the deficits and future requirements are calculated as per URDPFI Guidelines as below:-

EDUCATION:

The existing educational facilities and future requirement for Lumding Master Plan area up to the year 2045 have been estimated considering a higher standard as mentioned in the table below:-

Sl. No.	Type of Educational Institute	Norms	Existing Numbers	Deficit	Total Requirement
1	Primary school	1 in 2500 population	37	-	-
2	Middle school	1 in 5000 population	8	-	-
3	High school	1 in 7500 population	15	-	-
4	Higher Secondary school	1 in 90,000 population	6	-	-
5	General college	1 in 1,25,000 population	1	-	-
6	Junior college	1 in 90,000 Population	1	-	-
Health					
8	Intermediate Hospital	1 in 1,00,000 population	2	-	-
10	Sub-Dispensary	1 in 15,000 population	1	4	4
Communicatin					
11	Post Office	1 for 15,000 population	1	4	4
12	Police Station	1 for 90,000 population	1	-	-
13	Fire Station	1 for 2,00,000 population	1	-	-

9.10 SECTOR -WISE INVESTMENT PROPOSAL:

The sector wise requirement of implementation of various projects of Lumding Master Plan Area is detailed as table below:

Table-

Sl. No.	Location	Project Name
Neighborhood Centre		
1.	Jarang Disha	Neighborhood Center
2.	Mora Basti	Neighborhood Center
3.	Dakhin Lumding	Neighborhood Center
4.	Kangar Gaon	Neighborhood Center
5.	Sadhukhuti No.-1	Neighborhood Center
6.	Hati Khali	Neighborhood Center
7.	Pub Lumding	Neighborhood Center

Solid Waste management		
2.	Sadhu Khuti No.-1 (Dumping Yard)	<p>A. Construction of Material Recovery Facility (Dry), Composting Machine (Wet)</p> <p>B. Development of Solid Waste Engineering Landfill Site of 4 Bigha 0 Katha 0 Lessa of Land at Dag no.-2 of Sadhukhuti village.</p>
Drainage System		
3.	Lumding Municipal Area/ Lumding Planning Area	<p>A. Preparation of Master Plan and DPR for Drainage System.</p> <p>B. Construction and Improvement of Existing Storm Water Drains</p> <p>C. Cleaning and Maintenance of existing Drains</p> <p>D. Recycling process of storm drain water, chemical water, waste drain, water etc. before linking to river.</p>
Water Bodies		
4.	Lumding Planning Area	Improvement/Beautification of water bodies etc.
Traffic and Transportation		
5.	Sadhu Khuti No.-1 Near NH 27 (4 lane)	Construction of Bus Terminus and Truck Terminus
6.	Lumding Municipal Area / Lumding Planning Area	Construction of Auto and Bike Parking
7.	Lumding Municipal Area / Lumding Planning Area	Construction of Traffic Signals Point/Post (auto) at various junction points where traffic gathering is high with C.C camera
Recreational Facility		
8.	Lumding Plannig Area	Construction of Parks and Playgrounds
9.	Pathar Pani Lumding Panchayat	Construction of Parks and Playgrounds
10.	Lumding Planning Area	Construction of Swimming Pool
		Construction of Indoor Stadium
11.	Dakhin Lumding Panchayat	Construction of Auditorium and Library.
12.	Lumding Municipal Area / Lumding Planning Area	Construction of Sports Association Office.
13.	Lumding Planning Area	Construction of Engineering College

		(NIT/IIT/Assam Engineering College).
		Construction of Polytechnic College
		Construction of I.T.I
		Construction of B.Ed College
		Construction of D.Ed College
		Construction of Law College
		Construction of I.T. Park
		Construction of Fashion and Design Institute
		Construction of Electric power distribution Sub-station.
		Construction of Road side Flower Garden
		Construction of Medical Research Lab.
		Construction of Veterinary Hospital.
14.	Lumding Municipal Area / Lumding Planning Area	Installation of High Resolution C.C.T.V. camera.
		Requirement of any kind of State Govt. important main office.
15.	Atma Ram Road under Lumding Municipal Board	Construction of Three storied Lumding M.B(ULB) main office.
Industrial Area		
16.	Hatikhuli Area	Development of Industrial Area.
Fly Over / Under Ground Bridge		
17.	East Lumding(Railway Crossing)	Construction of Fly Over / Under Ground Bridge
18.	Near B.M.B. High school (Railway Crossing)	Construction of Fly Over
Road Bridge		
19.	Jhulan Pool Road to Chanmari Road	Construction of Road Bridge (Rising the bridge height)
Religious Spots		
20.	Lumding Planning Area	Improvement of Kali Mandir at Kali Bari, Sitla Maa Temple at Nadirpar, Dangri Baba Mandir at Ram Thakur Mandir (Bonoutshav) near Chanmari, Ram Krishna Mission at DTS colony, Shiv Temple at Pathar Pani Dakhin Lumding Panchayat, Buddha Mandir at Buddha colony as a tourism spot.

Construction/Improvement and widening of Road of Lumding Planning Area		
Sl. No.	Name of Road	Length in km. (appx)
1	Hanuman Mandir Road	(200-250 M)
2	Shyma Prasad Mukherjee opposite colony	(80-100 M)
3	Durga Mandir Side Road	(80-100 M)
4	Saraswati Path	(150-200 M)
5	Durga Mandir opposite colony	(80-100 M)
6	Saraswati Mandir opposite colony	(100-150 M)
7	Bholenath Path	(100-150 M)
8	Udolachal Path	(200-250 M)
9	Saradamoni Path	(200-250 M)
10	Chakraborty Sir Path	(80-100 M)
11	Gobinda Pally	(150-200 M)
12	Soroth Pally	(250-300 M)
13	Soroth Pally opposite Lane	(50-80 M)
14	Soroth Pally 2	(300-350 M)
15	Shriram Path	(100-150 M)
16	Jhulanpool Nadi Road	(100 M)
17	Loknath Mandir Road	(400-500 M)
18	Ghosh Patty Road	(300-400 M)
19	Ganga Path 1 No.Lane	(80-100 M)
20	Ganga Path 2 No.Lane	(100-150 M)
21	Shivnath Lane	(300-400 M)
22	Ganesh Path Road	(250-300 M)
23	Rajib Path 1 No.Lane	(50 M)
24	Tapasiddhi Lane	(150-200 M)
25	Jhulanpool to Khudiram Pally	(400-500 M)
26	Basudeb Lane	(150-200 M)
27	Sibu Nag Road	(80-100 M)
28	Besides Aju Bardhan Road	(80-100 M)
29	Besides Talukdar Shop	(100-130 M)
30	Mona Shop to Sarbari Madam House	(100-150 M)
31	Ramkrishna Path 1	(50-70 M)
32	Anhoy Bhowa to Shivbari Path	(200-250 M)
33	Sreemaa Sonomi Path Bye-Lane 1	(100 M)
34	Horpiada Lane	(200.20 M)
35	Brahma Kumari Road	(500 M)
36	Aseb Galli	(300 M)
37	Anup Sarkar House to Habul Das House	(200 M)
38	Assamese School Galli	(150 M)
39	Ananda Pally main road	(1100M)
40	Bhowmick house to S.Chakraborty house	(100 M)
41	Bijoy Mazumdar house to Mr. Bora house	(150 M)

42	Atta Ram Road	(400 M)
43	Mistry Patty	(1500 M)
44	Thanna Road	(400 M)
45	Station Road	(800 M)
46	Pumpa Studio to Jyoti Hall	(250 M)
47	Krishna Nagar Road	(400 M)
48	Radha cinema Hall to Station Road	(450 M)
49	Natun Bazar Road	(250 M)
50	Madhya Bazar Road	(300 M)
51	Kali Mandir to Upen Das house Sub-Road	(200 M)
52	Kartik Mallick house to Binod Mishra house	(450 M)
53	Haru Sur house to ELH School Sub-Road	(150 M)
54	Bharti Sangha club to Somajbari Mandir Road	(300 M)
55	Nipen Dutta house to Suman Dey house Somaj Bari Sub-Road	(200 M)
56	Chakraborty House to Samir house	(93 M)
57	Harlonphar L.P. School to M.E. School	(90 M)
58	Ram Thakur Nagar Kali Mandir till Chandmari transformer Road	
59	Manasa Mandir to connecting Main Road	
60	Shiv Mandir to Mantu Sill Road	
61	Jogadish House to Kali Mandir Road link	
62	Church Road main to Tapan Choudhury house Road	
63	Ananda Marg School	(250 M)
64	Bablu Chakraborty house to Ram Thakur Nagar Bridge	(200 M)
65	Nasu Malakar to Sitlabari	(115 M)
66	Atta Ram Road	(400 M)
67	Mistry Patty	(1500 M)
68	Thanna Road	(400 M)
69	Station Road	(800 M)
70	Pumpa Studio to Jyoti Hall	(250 M)
71	Krishna Nagar Road	(400 M)
72	Radha cinema Hall to Station Road	(450 M)
73	Natun Bazar Road	(250 M)
74	Madhya Bazar Road	(300 M)
75	Kali Mandir to Upen Das house Sub-Road	(200 M)
76	Kartik Mallick house to Binod Mishra house	(450 M)
77	Haru Sur house to ELH School Sub-Road	(150 M)

Construction/Improvement of Main Drain of Lumding Planning Area		
Sl. No.	Name of Drain (main- drain and sub- drain)	Length in mt. (appx)
1	Hanuman Mandir to Jhulonpool roadside of the road drain	(2000M)
2	Shyma Prasad Mukherjee statue to Jhulonpool river left side of road drain	
3	Shyma Prasad Mukherjee statue upto river right side of road drain	(1500 M)
4	Jhulonpool to Lanka road through Gaya Path left and right side of road drain	(1500 M)
5	Ashish Roy house to Main Road	(100 M)
6	Rohit Bose house to Soni Mandir	(150 M)
7	Near Bapan Bhowmick house	(150 M)
8	Paresh Mandal house to Paltu Banerjee house	(50 M)
9	Near Harlonphar river at Kamakhya Colony	(50 M)
10	Jagadish Bhattacharjee house towards Santunu Ghosh house	(95 M)
11	Dinesh Mandal house to Bakuli Das house	(200 M)
12	Bedi wine shop to Ram Thakur Athithi sala	(260 M)
13	Mistry Patty	(1500M)
14	Mazsid Road	(600 M)
15	Thanna Road Drain	(800 M)
16	Sahid field to Thanna Road	(400 M)
17	Hanuman Mandir Drain	(200M)
18	Shyma Prasad Mukherjee opposite colony Drain	(100 M)
19	Saraswati Path Drain	(100-150 M)
20	Durga Mandir opposite colony	(50-80 M)
21	Saraswati Mandir opposite colony	(100-150 M)
22	Bholenath Path Drain	(100-150 M)
23	Saradmoni Path	(200-250 M)
24	Chakraborty Sir Path	(80-100 M)
25	Gobinda Pally Drain	(200-250 M)
26	Soroth Pally	(250-300 M)
27	Soroth Pally 2	(300-350 M)
28	Soroth Pally	(250-300 M)
29	Shriram Path	(100M)
30	Soroth Pally 2	(300-350 M)
31	Shriram Path	(100-150 M)
32	Loknath Mandir Drain	(300 M)
33	Shivnath Lane Drain	(300-400 M)
34	Shivbari Path Drain	(300-400 M)
35	Ma Kali Path Drain	(300-400 M)
36	Jhulanpool to Khudiram Pally	(300-400 M)

37	Basudeb Lane	(150-200 M)
38	Aju Bardhan Side Road	(80-100 M)
39	Mona Shop to Sarbari Madam House	(100-150 M)
40	Ganesh Path Drain	(200-250 M)
41	Ganga Path 1	(80-100 M)
42	Ganga Path 2	(100-150 M)
43	Udayachal Path	(150-200 M)
44	Sreemaa Sonomi Path	(500 M)
45	Ramkrishna Path Drain	(500 M)
46	Jhulanpool Main Drain	(300M)
47	Siva Nag Drain	(100M)
48	ASEB Drain	(300M)
49	Ananda Pally Drain	(1500 M)
50	Dulal Biswas house towards Horulongphar river at Sankar Pally	(600 M)
51	Bardhan house to Nitai Dey house at Bajarongwal Path Drain	(900 M)
52	Paresh Mandal house towards house of Paltu Banerjee	(50 M)
53	Sitla Maa Temple towards Kamakhya Temple	(85 M)
54	Kali Bari Pukur Par towards house of P.Dutta	(50 M)
55	From Bishnu Bandha to Gautam Banik	(120M)
56	Atma Ram Road sub-drain	(800 M)
57	Back of Shree Maa Bhavan sub-drain	(300 M)
58	Krishna Nagar road main drain	(800 M)
59	Radha cinema hall road to station road main drain	(900 M)
60	Netaji Road main drain	(1250 M)
61	West Market Road main drain	(1400 M)
62	Natun Bazar Road main drain	(450 M)
63	Jamuna Path sub-drain	(400 M)
64	Netaji Road Bye-Lane sub-drain	(500 M)
65	Dry Fish market road sub-drain	(400 M)
66	Kali Mandir to Upen Das house road drain	(200 M)
67	Munni house to Binod Misra house road drain	(450 M)
68	Adarsha School to Raju Bardhan road drain	(225 M)
69	Amar Chand house to river main drain	(300 M)
70	Uttam Chakraborty house to river main drain	(150 M)
71	Runu Malakar to Joy Bhattacharjee drain	(100 M)

CHAPTER: 10

DISASTER PLAN :

Disaster is an undesired calamities event that seriously disrupts the functioning of a community or society and causes human, material and economic or environment losses that exceed the community's or society's ability to cope using its own resources. Disasters are usually caused by nature but in some cases, it can be caused by human actions as well. Disaster can be broadly classified into water and climate related geology related and accidental related. Assam has been traditionally vulnerable to natural disasters on account of its unique geo-climatic conditions. Flood, drought, cyclones, earth quakes and landslides have been recurrent phenomena.

At national level, the ministry of Home affairs is the nodal Ministry for all matters concerning disaster management and at state level State Disaster Response force under Ministry of Home, Govt. of Assam is the responsible agency to tackle any disasters within the State.

Lumding is one of the important town of Hojai district which is only 53.6 Km from Lumding Town and important railway township of Assam.

10.1 Mitigation Plan:

Any disaster management plan or emergency management plan consists of four phases, namely: Mitigation, Preparedness, Response and Recovery. The Mitigation component in an emergency management plan is aimed at reducing the risk, impact, effects of a disaster. Hence careful planning eliminate the phase is important to reduce or eliminate the long-term risk to human life, property from natural and manmade calamities. It's important to have mitigation plans led by local community, working together to identify, plan for in the event of a disaster and reduce vulnerabilities and promote long term personal and community resilience and sustainability. Mitigation Plans can concentrate on both pre-disaster and post disaster efforts to reduce the impact of the disaster.

Pres-disaster Mitigation should focus on projects and interventions to address natural and man-made disaster to reduce risk to the population and property. This is mainly achieved by strengthening the resilience of National/state infrastructure. Post- disaster Mitigation efforts are primarily designed to reduce future damage in an affected area and decrease the loss of life and property and life due to the incidents following the disaster. The essential steps of hazard mitigation are:

- (1) Hazards identification
- (2) Vulnerability Analysis
- (3) Defining a Hazard Mitigation Strategy.
- (4) Implementation of Hazard Mitigation Activities and projects

As Lumding region falls in a rain shadow zone, the entire region experiences less rainfall and prevails dry and Drought like condition, hence the disaster vulnerable area mitigation plan mainly focuses on flood, drought related eventualities and Train accident and Man animal conflict generally and how can it be mitigated and have better preparedness. It is important to note that disaster management is an integrated task involving various government departments of region and the plan should focus on prevention, preparedness, mitigation, response, and measures.

Flood

Normally, Lumding region is not affected by Flood. However, due incessant heavy rainfall in the hilly areas consequences flowing down of Rainwater from the hills of Dima Hasao district caused sudden flash floods at Lumding. The Lumding River and Harlongfar River was flowing above the danger level, while areas like Padagani, Dakhin Lumding, Nabin Pally, Chandmari, Sankar Pally and Julanpul in Lumding were inundated. Therefore, the Lumding region is sensitive to sudden flash flood. As per report, flood in 2019, swirling flood water have even forced the railway authority to control train services due to settlement of tracks in the lumding-Badarpur hill section.

Vulnerable Road to Flood:

Name of the Road	Total length in Km.	Population to be affected
Lumding-Dimapur Road	73.00 Km.	8314



An inundated Area in Lumding

Drought:-

The southern part of Nagaon district in central Assam valley and adjoining parts of Karbi Anglong form a rain-shadow zone where annual rainfall is as low as 800-1200 mm. Water scarcity is a potential constraint for the people living in these areas. Absence of effective irrigation systems or water harvesting practices adds to the vulnerability of the people. Lumding, located centrally in this zone shows a decline in rainfall at a rate of 2.15 mm per year. As a result water crisis might aggravate in this region in the coming years.

Sl. No.	Disastrous	Year of Occurrence	Area affected	Name of the localities
1.	Drought	2009	Hojai District	All the circles of the District

Sources :- Assam Disaster Management Authority.

Earth Quake :-

Lumding has not experience any major earthquake yet except few mild tremors occasionally. But the entire region is very much vulnerable to earth quake due to its weak geography and fragile geomorphology being in the most dangerous seismic zone i.e zone-VI. The difficult terrain and arduous communication has made hazardous to earthquake. The whole region is sitting on the bed of fragile sandstone and sedimentary rocks hence fragile. The soil is very much unstable here and hence needs special attraction to the structures and construction.

Landslide :- Though the entire region has no past history of landslide it is vulnerable to landslide due to its weak soil structures.

Seasonal Hazard Analysis

Hazards	Janu ary	Feb .	Marc h	Apr il	Ma y	Jun e	Jul y	Augu st	Sep t	Oc t	No v.	De c.
Cyclone	X	X	X	X	X	X	X	X	X	X	X	X
Flood					←	→						
Drought					←	→						
Earthquake	←	→									→	
Fire		←	→									
Lightening				←	→							
Epidemic	←	→									→	

Source:- Department of Disaster Management, Nagaon

Vulnerability (Risk and Hazards Analysis)

Types of Hazards	Potential	Vulnerability	Vulnerable areas
Cyclone	Nil	-	-
Flood	Loss of crops, Human lives and animals and properties damage	Communication facility, Agriculture & Horticulture, Private infrastructure Houses, Irrigation sources, Electrical installations, Drinking water sources, Educational institution, and livestock	Surrounding Areas of the Lumding region
Drought	Drought human life and pets	Loss of Human lives & pets	Entire Lumding circle
Earthquake	Human lives & Structures both public & Pvt.	Loss of Human lives & structures both public & pvt.	Entire Lumding Circle
Fire	Lives and property	Loss of Human lives & structures both public & pvt.	Entire Lumding Circle
Epidemic	Human lives & Pets	Loss of Human lives and pets	Entire Lumding Circle
Lightening	Human lives	Loss of Human lives	Entire Lumding Circle

Source:-District Disaster Management Plan, DDMA, Nagaon

10.2 Prevention:

As part of the said natural disasters the following measures can be adopted by concerned govt. departments to avoid and minimize the impacts of natural disasters.

= The public work department should monitor the major water bodies like river, streams lakes for constant flow of water, rising level and identify potential areas along the water bodies which need additional embankment or revetments, and these works should be implemented on priority before the onset of the season.

= Power and communication should carry out through inspection of power lines, communication lines for defects and rectify them. Trees and branches which may damage power and communication lines should be trimmed or removed.

=Health department should ensure the primary and community health centers are equipped with medicines and medical staff. Preventive vaccines for epidemics should be stocked in adequate quantity. Chlorination of drinking water should be ensured to avoid the outbreak of epidemics in the event of cyclones and floods.

= The department of disaster management is the nodal agency in the Luming region and has already handled several flood and cyclone situation in the region. From this experience, it should be able to identify the low lying and vulnerable areas and the population of such places must be warned to be alert and to be ready to safer areas or to the relief camps in case of warning disaster.

= The department of civil supplies & consumer affairs should decide for creation of buffer stock of food grains by making required withdrawal from the food corporation of India. Also, adequate quantities of kerosene and diesel should be procured and made available through the fair price shops.

=Department of Agriculture should take steps to publicize precautionary measures to be taken to save the standing crops in the vulnerable areas. Farmers should be encouraged to have platforms in their fields to stock the crops. De-silting of the public and private irrigation canals should be ensured for quick drainage of paddy fields.

=Fisheries Department shall alert all the people residing on river bank villages and hamlets about the impending natural calamities and advice the fisherman not to venture into sea till normalcy is restored.

=Department of School education shall keep all schools ready for accommodating the evacuees and keep the central kitchens to function around the clock with in charge of the centers. NCC and NSS students shall also be grouped to send them for relief works.

=Department of Animal Husbandry should store fodder, cattle feed, and poultry food etc. and also carries out the inoculation of animals against epidemics. The Key village units should harbor stray cattle with shelters.

=Transport Department should keep ready the list of sufficient numbers of earthmoving vehicles, transportation vehicles such as trucks, tractors, tippers, proclams, mini buses etc. Further, all the listed vehicle allocated in connection with calamity has to be kept in roadworthy condition for using them in emergency.

=Local Urban Bodies/Municipal Board shall make rearrangement for availability of Generators and pump sets at short notice. For areas with water logging and artificial flood local bodies should clear the L & U type drained which normally clog due to plastic materials and silt.

=Police department shall set up a Search & Rescue Team which shall contain at least 20 police personal for each jurisdiction of the superintendent of police.

=Similarly, the fire services department shall set up search & Rescue Team consisting of at least 6 members of each fire station.

10.3 Mitigation and Preparedness:

Pre-disaster planning consists of activities such as disaster mitigation and disaster preparedness. Disaster mitigation focuses on the hazard that causes the disaster and tries to

eliminate or drastically reduce its effects. The best example of mitigation is the construction of embankments and construction of proper drainage system in flood prone areas to avoid floods. The other example includes retrofitting of weak buildings to make them earthquake resistant. And preparedness focuses on plans to respond to a disaster threat or occurrence. It takes into account estimation of emergency needs and identifies the resources to meet the needs.

The first objective of the preparedness is to reduce the disaster impact through appropriate actions and improve the capacity of those who are likely to be improving the capacity of those who are likely to be affected most. The second is to ensure that ongoing development continues to improve the capacities and capabilities of the system to strengthen preparedness efforts at community level. Finally, it guides reconstruction so as to ensure reduction in vulnerability. The best example of preparedness activities are the development of community awareness and sanitization system through community education and administrative preparedness by way of stockpiling of supplies, developing emergency plans for rescue and relief. For successful mitigation plan it is necessary to identify short- medium-long term mitigation measures risks and damages.

The following steps can be taken to reduce the risk in the unfortunate event of the said natural disasters.

=Restore communication networks

=The task force in association with reach and rescue teams of police and fire should thoroughly search the affected area for survivors and injured.

=In case of heavy flooding and inundation, vehicular access may be restricted and hence suitable rafts/boats should be used to rescue and evacuate the people affected by the floods

=Water logging in low lying residential areas should be pumped out and the pump out water could be let out through the nearest natural drain or canal. Also fire engines can be deployed to pump out water from affected areas during emergencies.

=Any breach in rivers, streams or natural drains should be protected with adequate sand bags or creation of temporary embankments to avoid further damage to property and human life

=In case of heavy storms, power supply to areas which are in the primary path of the storm can be disconnected to avoid hazards due to breakage of power lines. Provisions should be made to provide generators for temporary power supply to storm affected areas.

=Relief camps should be opened in appropriate location where a large number of people are affected.

Table :- Mitigation

Type of Sector	Sub-sector	Mitigation Measures	Responsible Dept.	Time frame
Infrastructure Development	Road	Repair, Restoration of vulnerable points on roads before onset of monsoon	PWD/DRDA	During Normal time and immediately
	Embankments	Repair of vulnerable points in river/canal embankment during free flood period	Water Resources/Irrigation	During Normal time and immediately`
	Bridge	Repair, restoration of vulnerable points on bridge before onset of flood	PWD, NH	During Normal time
	Communication	Ensure maintenance and proper functioning of electronic communication system	BSNL	Round the year
	Drinking water	Replacement of tube well/pipe water	PHE/ Health Deppt.	During Normal time and immediately`
	Power	Immediate response for repair of electric line and supply	PWD, ASEB	Round the year
Health	Vaccination	Adequate stock piling of vaccines should be ensured	CMO, DVO, NGO,s	During Normal time and immediately`
	Training	Training Programme of common people should be programmed for Health care, sanitation and first aid from village level to district	CMO, DVO, NGO,s	During Normal period
Livelihood	Awareness	Creating awareness among general public during normal time to insured human life	Leading NGO,s	During Normal time
	Agriculture	Alternant cropping pattern/flood resistance crops/crops insurance etc	Dy. Director Agriculture	During normal time and immediately after disaster.
Planning and Response	Relief/Rehabilitation	Regular updation of departmental contingency plan, Community awareness and involvement of NGO,s Regular conduct of mock drill	Line Departments	During Normal time

10.4 Response Plan:

Response measures are those taken immediately prior to and following disaster impact. It is important to have clear organizational chart structures with established line of authority within the Government mechanism to handle the response plan in case of natural calamities. Response plans include formation of functional teams and providing plans for the transportation, evacuation, search and rescue and rehabilitation. Survey and assessment part should be the part of response activity. Coordinated IEC activities should be initiated well in advance

- =Mock Drill should carry out twice a year.
- =Make separate plan of operation and list of required materials, tools, machineries for each kind of disaster.
- =Train the rescue team with equipments
- =Train the panchayat leaders, Municipal leaders, Volunteers etc.
- =Approach to NDMA and SDMA for any kind of assistance.
- =Incident Command Officer shall organize regular coordination meeting with all DM committee members, Head of Offices, Public leaders, NGO,s and Senior citizen in consultation with the chairman
- =The RRT,s (Medical & Police) will be alerted by the incident Command Officer.

10.5 Aim of Disaster Response:

- = To ensure the survival of the maximum possible number of victims, keeping them in the best possible Health in the circumstances.
- = To re-established self sufficiency and essential services as quickly as possible for all population group.
- =To repair or replace damaged infrastructure and regenerate viable economic activities.
- =In situation of civil conflict the aim is to protect and assist the civilian population.
- =In case involving population displacement the aim is to find durable solutions as quickly as possible.

10.6 Relief:**During the disaster**

- =Disseminate the warning of disaster from DDR & IC to all concerned destination in single attempt by using mass sms, announcement through radio, social media, print media and ask the people who are likely to be affected, to take shelter in safer places.

=Immediate deploy the forces to clear the route of search & rescue and also to clear the traffic from the route of rescue

=Command to the forces, NGO,s. SHG,s & volunteers to rush immediately to the affected area for search and rescue with all pre listed tools, equipment for disaster.

10.7 City Disaster Management Plan:

The points mentioned above should be part of a city or region level disaster management Plan. The Disaster Management Act, 2005 has brought a change from response & relief oriented approach. This has encouraged many cities to formulate a city disaster management plan, the same should be worked for Lumding MPA as well to enable it to be better prepared in case of natural disasters in the future. As part of Master Plan 2045 the authority feels there is a need for a CDMP for the Planning area covering the following general principles-

- =Risk & Hazard Assessment
- =Planning
- =Organization
- =Resource Utilization
- =Need for Specialist
- =Training

Generally, the CDMP prepared for the planning area should include sectoral plans covering the following aspects of disaster & emergency management:-

- =Overall Preparedness
- =Emergency Response
- =Prevention
- =Mitigation
- =Recovery
- =Reconstruction
- =Capacity Building Plans

